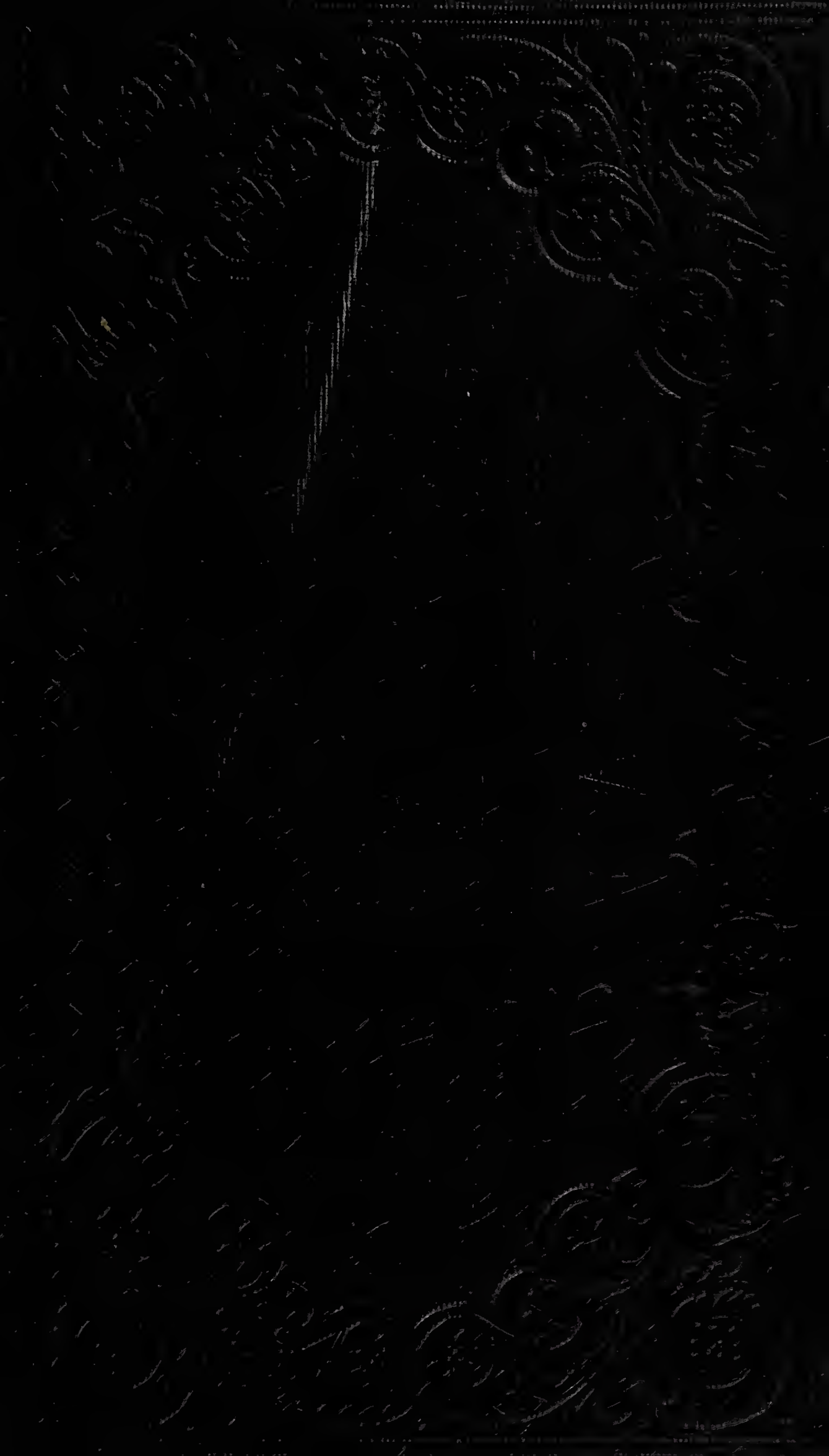

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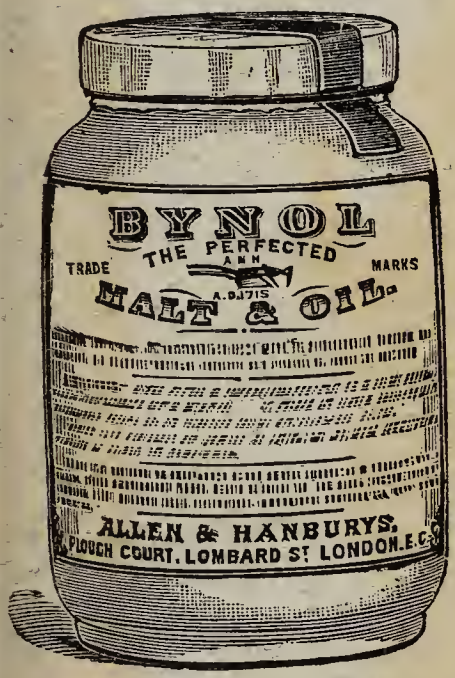

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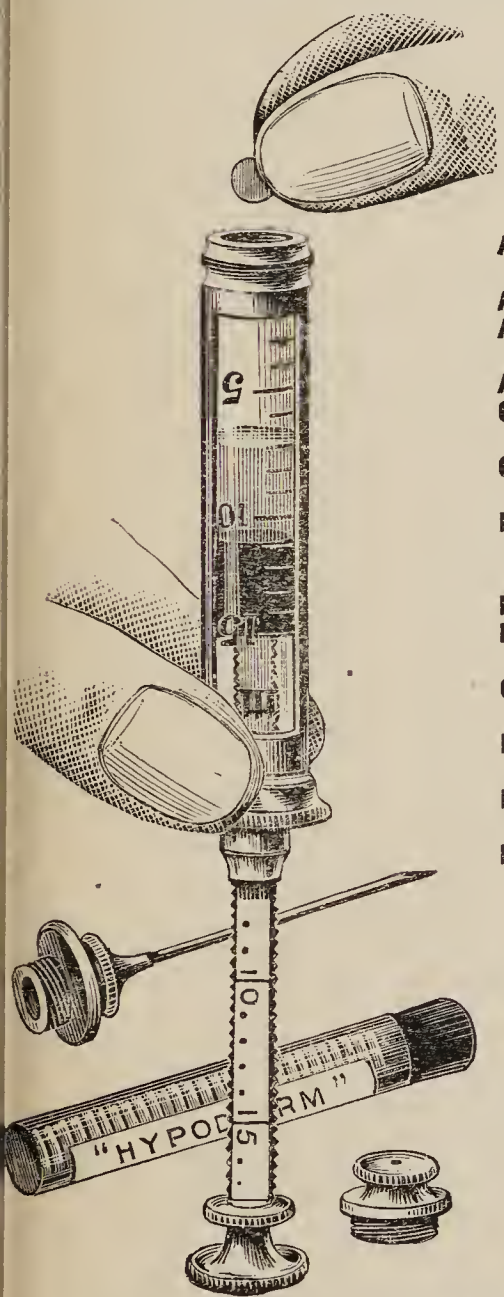

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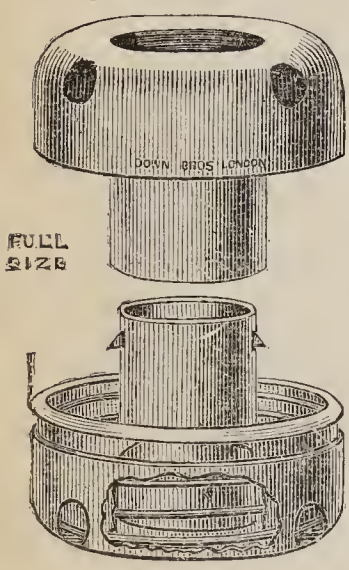

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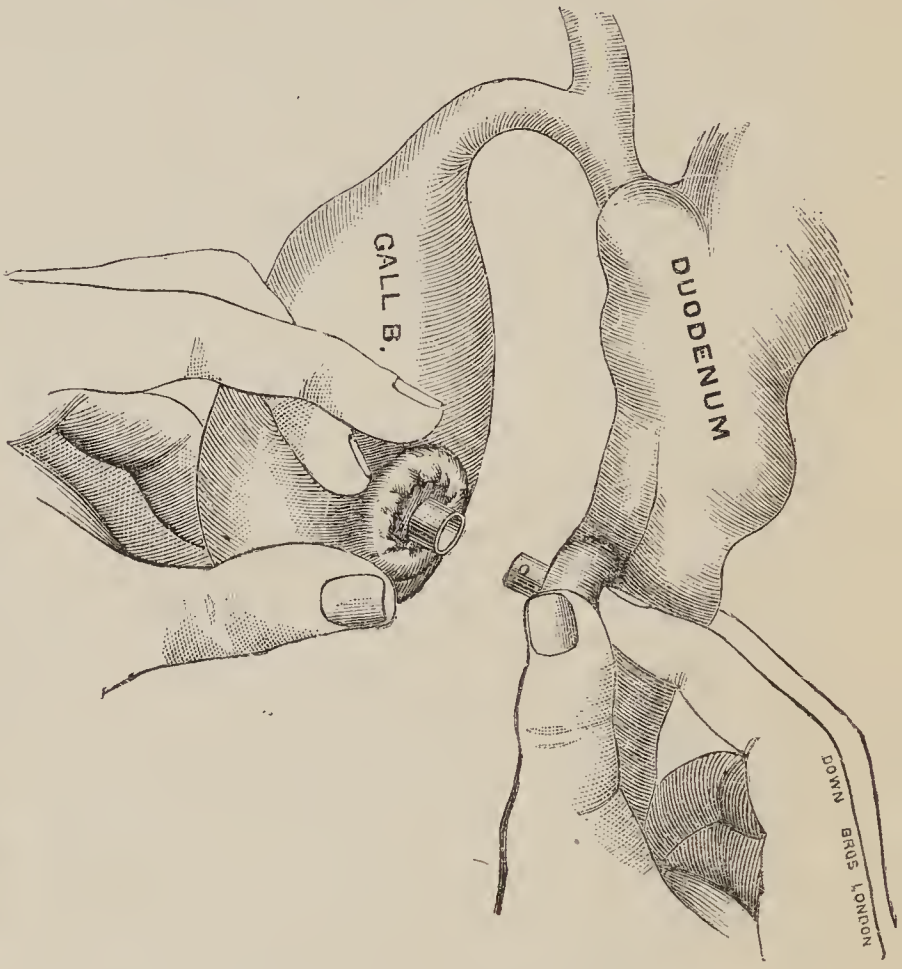

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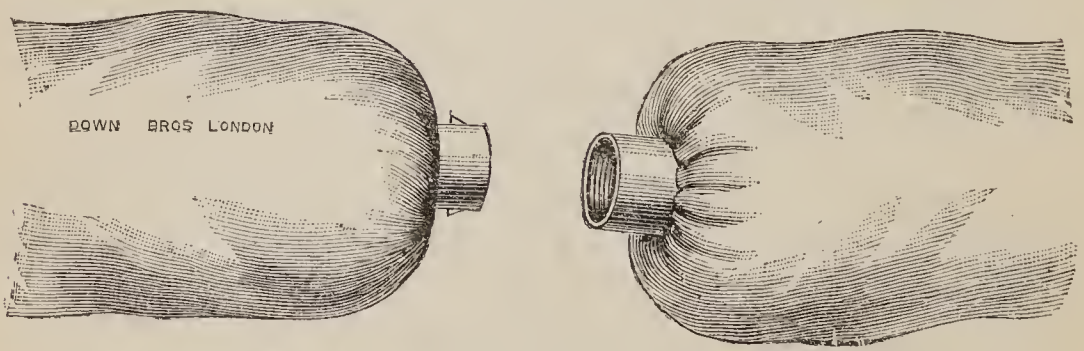

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LATE LECTURER ON DISEASES OF WOMEN AND CHILDREN, LEEDS SCHOOL OF MEDICINE
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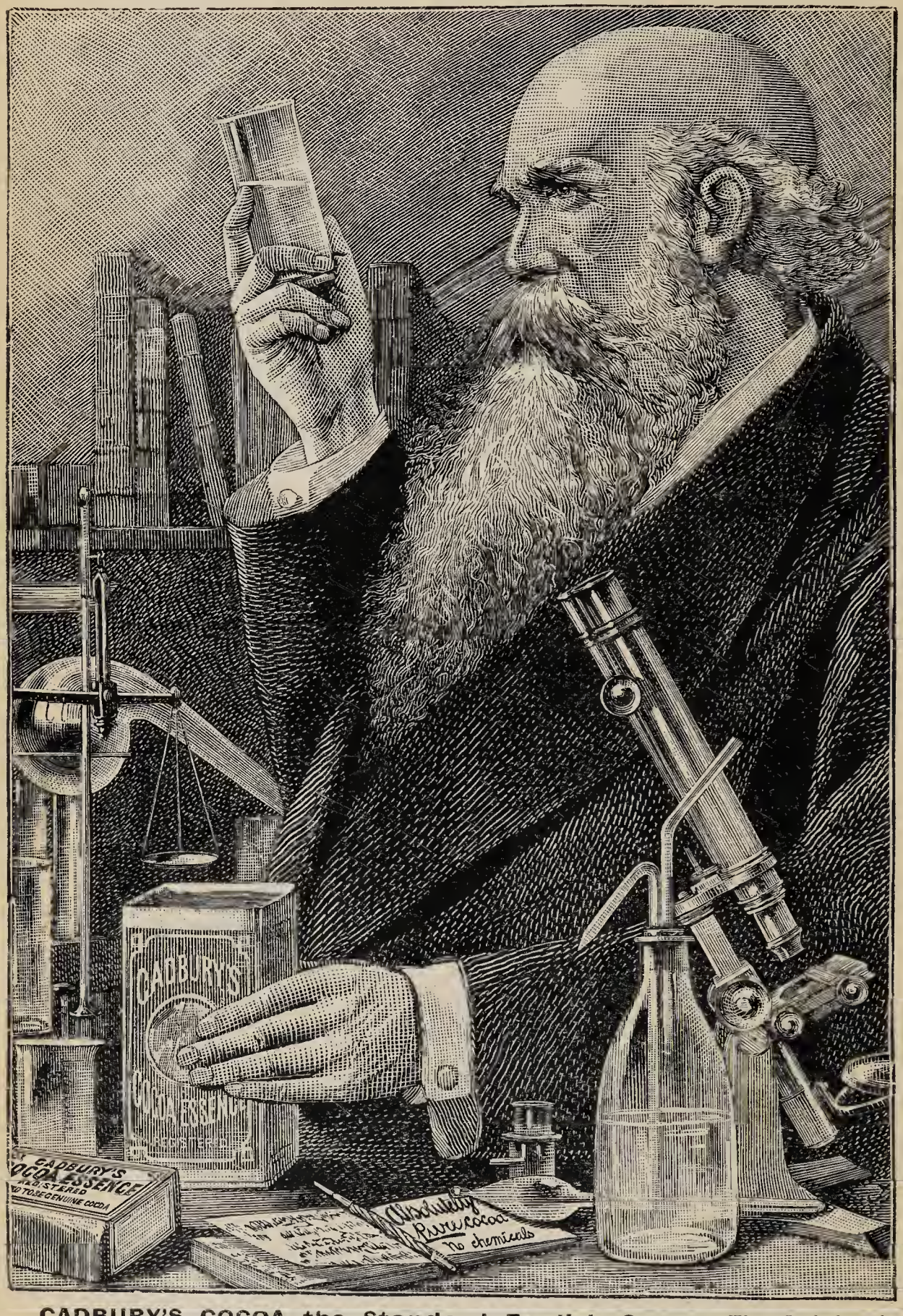

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Synopsis.

AN ABSTRACT OF THE MOST PRACTICAL ARTICLES IN THIS VOLUME, WITH OTHER SHORT ARTICLES FROM THE MEDICAL JOURNALS, SHOWING THE MOST IMPORTANT INDICATIONS OF TREATMENT, PUBLISHED BY DIFFERENT WRITERS DURING THE HALF YEAR.

ARRANGED ALPHABETICALLY.

GENERAL MEDICINE AND THERAPEUTICS.

CALCIUM CHLORIDE.—Its Effects upon the Coagulability of the Blood.

I have already, in a previous paper, shown that the internal administration of calcium chloride increases the coagulability of the blood (*a*) in animals (dogs and rabbits), (*b*) in the case of my friend Dr. Leonard Rogers and in my own case, and (*c*) in the case of a hæmophiliac boy who was under my care in July, 1893. I need not do more than supplement this by the following observations on certain families of hæmophiliacs: *Case 1.—Hæmophilia inherited from mother and grandmother.*—This reported derivation of the disease was confirmed by the fact (*a*) that the mother's blood had a coagulation time of 7 minutes, as compared with a coagulation time of 3 minutes in the father's blood (both under identical conditions of temperature and diet), and (*b*) by the fact that the grandmother's blood has a coagulation time of 11 minutes, as compared with a coagulation time of $5\frac{1}{4}$ minutes in the grandfather's blood (both under identical conditions of diet and temperature). The effect of an administration of calcium chloride to a selected number of the members of this family was that evidence was obtained of increased coagulability of all the members of the family except the hæmophiliac boy himself. It is impossible to be certain whether in his case there was any increase of coagulability or not, for the determinations of coagulability were made at such unfavourable temperatures that it was a matter of difficulty to obtain a correct measure of his coagulability. *Case 2.—Hæmophilia said to be inherited through the mother.*—No confirmation of this history obtained on comparing the mother's coagulation time ($3\frac{1}{2}$ minutes at 18·5° C.) with the father's coagulation time (3 minutes 40 seconds, at 18·5° C.).

The administration of comparatively large doses of lime was successful in reducing coagulation time in both these cases. (A third case in which the administration of calcium chloride was followed by a reduction of the coagulation time is here omitted). It has thus been shown that in the case of four quite unrelated hæmophiliac families (that is, in the cases just reported and in the case reported in my previous paper) that the administration of calcium chloride causes an increase of blood coagulability. I have collected some, but as yet insufficient, evidence of the same favourable effect in the case of three other hæmophiliac families which have come under my observation. I have also notes of a case in which the administration of calcium chloride enabled an operation for nasal polypi to be successfully carried out. An operation had been attempted upon a previous occasion upon the patient in question (a girl who is a member of one of the families of hæmophiliacs last referred to), but it was apparently found necessary to abandon it owing to the onset of serious hemorrhage. A brother of this girl died from hemorrhage after extraction of a tooth, and his case has been reported in the Army Medical Reports for 1893 by Surgeon-Captain Grenville E. Moffett. I am indebted to this officer for an opportunity of studying this hæmophiliac family. (Prof. A. E. Wright, British Medical Journal, July 14, 1894, p. 57.)

CHRONIC RHEUMATISM.—Treatment.

Dr. Dujardin-Beaumetz divides chronic rheumatism into three groups:—(1) Rheumatismus deformus (Charcot); (2) chronic, succeeding an acute rheumatism; (3) the multiple manifestations in chronic course of a rheumatic. The first group must be treated for a disturbance of nutrition, and arsenic and the iodides give the best results. Fowler's solution, sodium arsenate, arsenous acid are useful, but arsenical baths—because it has been proven that an intact skin does not absorb medicinal solutions—are likely to be therapeutic illusions. In the iodine treatment, the iodine itself is not to be preferred to the iodides, because, even if administered in wine, it irritates the stomach. Of the iodides, an average daily dose of fifteen grains is sufficient; as a potassium iodide, or as sodium iodide with the sodium bromide and chloride, or in alternation with gold and sodium chloride. For the painful crises, phenacetine gives the best results. Paracetphenetidine, in seven-grain doses, is a powerful analgesic. The diet is the opposite to that of the gouty: meats, green vegetables, generous wines, and milk. The external treatment consists in electricity and balneotherapy. The chronic rheumatisms of the second class are relieved by the salicylates, and they as well have a preventive action. Fifteen

to thirty grains per day, or, in some cases, asaprol, and more rarely phenacetine, are required. But the essential cure of this rheumatism is external treatment, massage, electricity, and balneotherapy. The massage, methodically employed, and with care, during the period of quiescence, benefits the functional impairment of the joints, and as well the accompanying muscular atrophy. The muscular atrophy is benefited by electricity, by continued or slowly interrupted currents. The baths at Aix, Bourbonne, Plombières, and Dax, particularly the mud-baths at the last station, give excellent results. For diet, a mixed one, in which vegetables form a large part, is indicated. It is important that the different emunctories shall act properly, and laxatives and diuretic liquids should be employed, white wine or milk. In the last form it is the diathetic condition which must be opposed; here the thermal waters and regulated diet are important. Muscular pains and neuralgias of rheumatic origin are relieved by antipyrin, and especially phenacetine, which should be placed by the side of sodium salicylate and asaprol. In this class also the bowels should be kept open and the kidneys active, and in the latter case the action of antipyrin in diminishing the urinary secretion may be a disadvantage. To assist the skin in performing its functions, vapour baths, Russian baths, warm or Scotch douche, even the cold douche, are excellent methods. As for the thermal stations, especially are to be considered Dax, and afterward Plombières, Aix-les-Bains, Bourbonne-les-Bains, Bourbon-Lancy, the last particularly for the visceral manifestations, the myocardites. The diet should not include any substance which can contain toxic ptomaïnes. Game, fish, shell-fish, mushrooms, old cheese, should be guarded against, while a vegetable diet, milk, and fruits are useful.—*Bulletin général de Thérapeutique*, 1894, 6th liv., p. 97. (The American Journal of the Medical Sciences, May, 1894, p. 575.)

DIABETES.—The Pancreas in.

At the International Medical Congress (1894) Professor Hansemann gave an account of the morbid changes found in the pancreas of diabetic patients after death. He said that numerous experiments on dogs had shown that the total extirpation of the pancreas was followed by diabetes. He asked himself whether the facts of human pathology showed that there was a connection between disease of the pancreas and diabetes or not. In his opinion, diabetes might exist without disease of the pancreas, but in 50 per cent. of all cases diabetes was associated with disease of the pancreas; the most frequent lesion was simple atrophy, which might be easily distinguished from the cachetic atrophy. Moreover, he found sclerosis due to the excess of fibrous tissue; atrophy, after blocking up of the

duct, through tumours, &c. This last disease only led accidentally to diabetes — that is, when the atrophy had gone far enough; but the real primary atrophy of the pancreas was the disease which produced diabetes, even in the early stages of the disease. Diabetes occurred seldom only in cases of necrosis of the pancreas, owing to the rapid course of this disease, as it took time for the glycosuria to be established; however, as it often disappeared just before death in cases of total extirpation of the pancreas, there was not sufficient time left for the appearance of the glycosuria. Cancer, as a rule, did not produce diabetes, because the cancer cells, being descended from pancreas cells, no longer secreted, but were able to fulfil their function—that is, the internal secretion. (British Medical Journal, August 14, 1894, p. 796.)

DIPHTHERIA.

In the course of a discussion on Diphtheria, at the Hunterian Society, on April 25, 1894, Dr. Goodall said diphtheria might be defined as an inflammatory disease primarily of the tonsils or fauces attended with the formation of some sort of deposit, and frequently though not necessarily, associated with the formation of a special membrane due to the development of a micro-organism, and associated with certain secondary effects due to the absorption of toxins. He had repeatedly met with cases in which the usual secondary efforts were observed without any trace of exudation. He had never come across a case in which the so-called diphtheritic paralysis followed in which the fauces were not previously affected. For practical purposes he was disposed to accept as diphtheria all cases of membranous sore throat, in the absence of some other cause, such as scarlet fever. If there were any local spread the disease was almost certainly diphtheria, and if it involved the larynx, then it was certainly diphtheria. Diphtheria sometimes seemed to occur as a complication of other acute diseases. Its occurrence in association with scarlet fever and measles was too frequent to be merely accidental; and it was often quite impossible to discover any history of possible communication. It was absolutely necessary to distinguish between diphtheria and a diphtheritic sore throat. A tough thick membrane was often seen in scarlet fever. Personally he was inclined to view this complication as a consequence of a very severe angina. First, the larynx was very rarely involved in this form. Out of 68 cases of scarlet fever with diphtheritic fauces in only 3 per cent. was the larynx affected, whereas in 1,071 cases of primary diphtheria croup was observed in 204 cases. Only 3 of the 63 cases developed paralytic symptoms, whereas 125 of the other series did so. Again, the membrane which formed in the course of an attack

of scarlet fever did not recur when once it had disappeared. Lastly, these cases of scarlet fever with a diphtheritic throat did not give rise to other cases of diphtheria in the ward. When undoubted diphtheria did occur in scarlet fever patients it was much more fatal that primary diphtheria, and when it occurred in association with measles it was more fatal than when it complicated scarlet fever. Out of 15 cases of measles thus complicated 14 died. Cases of uncomplicated measles might give rise to cases complicated with diphtheria. Of 1,064 patients with scarlet fever 27 got post-scarlatinal diphtheria—1·5 per cent. Among his own cases 41 patients with primary measles, 6 were complicated with diphtheria. It was rare in diphtheria to get a history of a previous attack of sore throat. If the scarlet fever throat predisposed thereto diphtheria would be more frequent in this association than it was.

Dr. Sidney Martin said very little was known about the membranous forms of sore throat other than diphtheria. Much confusion had been caused by the use of the term "diphtheritic inflammation," which Virchow defined as "an inflammatory process characterised by an exudation of fibrin and by necrosis of the tissues." There were various causes of this form of inflammation, one of which was diphtheria. It would be best to discard this term, and to speak of membranous or fibrinous inflammation. The marked enlargement of the spleen observed in septic sore throats might perhaps enable us to distinguish between these cases and true diphtheria. At present we were compelled to rely for our diagnosis upon cultivations of the secretions. The membrane was the fount and origin of the disease, a thesis which, he thought, could not at present be seriously gainsaid. Diphtheria might be defined as a disease of insidious onset—though it did sometimes begin suddenly—which might or might not be associated with membranous formations in the throat, and accompanied by fever and bodily depression, with or without the presence of albumen in the urine. The tendency of the disease was to produce a cardiac affection showing itself either as fatal syncope or tachycardia, or by palsy due to nerve degeneration, sometimes small in extent, sometimes widespread. It was characterised also by a tendency to invade the larynx by specific bacilli, which cause a fibrinous exudation. This bacillus bred in the false membranes and produced poisons, transforming the proteids of the spleen into products which gave origin to the symptoms of the disease. In the case of a man who lived twenty-nine days, and died after developing paralysis of the palate on the ninth day, with loss of knee-jerk between the twelfth and fourteenth day, and followed by general paralysis, sections of the spinal cord showed an increase of augumentation in the cells of the motor area of the cord, and

degeneration of the nerves leading to them. Rupture of the axis cylinder was a preliminary step to degeneration of the nerves towards the muscle. Ultimately only the primitive sheath remained with masses of black here and there, which constituted the remains of the substance of Schwann. There was also an increase in the number of nuclei. In all cases of acute diphtheria which lasted more than ten days and died, it was possible to make out this nerve degeneration. The lesions resembled the fatty degeneration which followed the experimental injection of the poisons from diphtheritic secretions.

Dr. Washbourn had never had the slightest difficulty in demonstrating the presence of the bacillus, and this in large numbers, in all recognised cases of diphtheria. The bacillus was only found in the membrane; it was, therefore, a local disease, for the bacillus never grew in the tissues or fluids of the body. The membrane which formed in the fauces was very different in appearance from that which formed in the trachea, and as it spread into the smaller bronchi it gradually changed into a thick exudation. He described the method of making cultivations of the bacillus from the membrane. A patch of membrane was washed with sterilised water, and then a piece was hooked off with sterilised platinum wire, and sewn on the surface of some blood serum. The tube was put in an incubator, and within twelve hours a diagnosis could most certainly be made. If the case were one of diphtheria, there developed on the surface of the serum a number of large white colonies of the diphtheria bacillus; when a little of the culture was spread on a cover glass, dried, and stained with methyl blue, the bacillus could be seen with high power. It consisted of rods, clubbed at the ends and taking the stain irregularly. It has been assumed that the "pseudo-diphtheria bacillus" was only a modification of the ordinary diphtheria bacillus. In favour of this view was the fact that the ordinary virulent bacillus could be rendered non-virulent by certain methods of cultivation. In forty-five children suffering from various diseases of the throat other than diphtheria the pseudo-bacillus had been identified in fifteen, and the examination of the fauces of forty-nine healthy children showed it to be present in twenty-six. It had been suggested that the non-virulent bacillus might undergo an increase of virulence in the presence of a certain inflammation, and this view would explain the occurrence of many outbreaks of the disease. Membranous exudations often occurred in scarlet fever, but this was not diphtheria, for the bacillus could not be found, and clinically this exudation differed also, and was not followed by paralysis. Another class of cases were those of real diphtheria without membrane. He referred to the case of three brothers in the same house, all of whom were attacked with sore

throat. The first two had simple redness of the fauces, but showed the diphtheria bacillus, and the third shortly afterwards had a typical attack of membranous diphtheria. As to the duration of infection, fourteen days after the disappearance of the membrane virulent bacilli had been found on the tonsils. One might get a membranous exudation in the throat of pigeons, which though contagious was not diphtheria. (British Medical Journal, May 5, 1894, p. 968.)

Diphtheria.—Antitoxin in.

The value of diphtheria antitoxin in country practice is the gist of a report by Dr. Strahlmann of an epidemic in Wildeshausen, a village containing about 2,000 inhabitants, in the Grand Duchy of Oldenburg. From August, 1893, to July 1, 1894, the number of cases of diphtheria was 384, of which 48 proved fatal. During the latter part of the time—that is to say, from May 14 to July 1—all the fresh cases, 48 in number, were treated by the injection of the Behring-Ehrlich antitoxic serum. Only three of these cases proved fatal, two from general blood poisoning, due to the invasion of streptococci, and one from croup, for which last tracheotomy was performed. Some of the remaining 45 cases were very severe, with enlargement of the glands of the neck, fetor of the mouth, thick dirty grey exudation on the tonsils, soft palate, and uvula, and a large amount of infiltration and high fever. As a rule two cubic centimetres of the serum were injected at first, and afterwards half that quantity; in severe cases the injections were repeated several times, sometimes as often as every day. The change produced was remarkable, the exudation becoming clean and white, the temperature going down, and the patient's general condition improving greatly. Subsequently the exudation peeled off. The most striking results were obtained when the treatment was commenced at the outset of a case. Here the abnormal appearances generally vanished within four-and-twenty hours. The serum was also employed in 94 cases as a prophylactic, and appeared to protect children even in the midst of infected families, though not for any very lengthened period, as some of those so protected contracted the disease from five and a half to ten weeks subsequently. The injections were made between the shoulder-blades, and in no case produced any unpleasant effects. (The Lancet, August 25, 1894, p. 455.)

Diphtheria.—Antitoxin in.

Dr. J. P. Williams-Freeman (Andover) writes:—K. W., aged 21 months, a strong, healthy child, on September 25 had a cold in the head. The glands of the neck were somewhat swollen and tender, and she was fretful and troublesome as to food, but

nothing was to be seen in the throat. On September 28 she was decidedly hoarse and pale. On September 29 she was very fretful and pale, vomited, and refused food and medicine. On September 30 a small patch of membrane was visible on the left tonsil in the morning. The temperature was 91·4°; pulse, 108; the respiration 24, and slightly croupy. I obtained from Dr. Armand Ruffer, of the British Institute of Preventive Medicine, some antitoxin serum prepared in Dr. Roux's laboratory in Paris, of proved "immunising power of 1 in 60,000 or thereabouts," and at 10.30 p.m. injected 20 c.c. into the subcutaneous tissue of the side of the abdomen. The resulting swelling rapidly softened, but was perceptible twelve hours afterwards, and the tenderness persisted for twenty-four hours. The child was crouping decidedly, was fed with great difficulty, and was extremely restless. An elder sister, aged $5\frac{1}{2}$ years, which had been tracheotomised three days before, died during the night from heart failure. On October 1, when seen at noon, the child was very decidedly worse. The membrane covered the left side of the uvula and both tonsils, which met and obstructed further view. The temperature was 99·2°; the pulse 130, and almost imperceptible; the respirations were 40, and very croupy; there was marked retraction of the chest, and great pallor and weakness, and the child had only slept an hour and a half during the twenty-four hours. About 6 p.m. it showed signs of improvement, took nourishment better, and slept peacefully through the night. At 9 p.m. the temperature was 97·8°; the pulse, 104; and the respirations 20. On October 2 there was great improvement in every way. The child took nourishment freely and without pain; was playful, but slept much. Its colour was much improved. A little dirty-looking membrane remained on the right tonsil only. I injected 10 c.c. more serum at 2 p.m.; the swelling disappeared in half an hour, but tenderness persisted till the evening; it was gone next morning. The temperature was 98°, pulse 104, respirations 24. On October 3 the membrane was gone, and on October 4 the child had a little cough, but otherwise appeared quite well. On October 7 the child had a diffused raised erythema widely spread over the face, body, and limbs, with great itching. The temperature was 99°, due probably to over-feeding. On October 8 the rash was nearly gone. The child had half a teaspoonful of brandy every two hours during October 1 and 2, otherwise no treatment, general or local, after Sept. 29. (British Medical Journal, October 13, 1894, p. 820.)

Diphtheria.—Antitoxin in.

Mr. H. U. Walker, of Worksop, reports the following case: I was called in to see the patient, eight years of age, on July 27.

I was told she had been ill for a day or two. She had passed a very restless night. On July 28 the child seemed more restless, the colour in the face was rather darker in hue, the pulse quicker and the breathing more difficult. The throat presented much the same appearance as on the previous day. On July 29 the child was distinctly worse, especially the breathing. The fauces on the right and left side were covered with membrane. In the evening the respiration was very quick. On July 30 the membrane was well formed, even extending well over the soft palate and hanging down into the mouth. Up to this time the child had been treated with iron and chlorate of potash internally, and the constant use of the lime-water spray. (One patient under my care just previously—a very bad case—did so remarkably well with the lime-water spray that I naturally did not wish to discard this method of treatment in favour of another of which I had little or no experience.) However, it was evident that something more would require to be done if the patient was to improve, for I noticed that in spite of the treatment another patch of membrane had formed in front of the curtain which hung down from the soft palate. I resorted to antitoxin. Eleven minims of antitoxin were then injected into the forearm with strict antiseptic precautions. The temperature at the time of injection was 103° F., and the pulse 140. In four hours after the injection the child was much improved. There was no fever and the pulse was quite quiet. She had a good night, and had to be roused by the nurse to receive her nourishment, which throughout consisted of beef tea, chicken soup, brandy and milk, and wine whey. On July 31 I noticed that the same improvement continued, although the membrane was still present. However, it was apparently loosening at the right side. My patient informed me that her temperature was 98·4° F., and I found she was nearly correct, as it was normal. During the day much of the membrane came away. The last patch to form had disappeared. All that was to be seen was on the uvula and on the left side. On August 1 all signs of membrane had disappeared; the temperature was normal and the pulse good. The patient begged to be allowed to have her picture books in bed. The throat caused her no pain. From that date uninterrupted recovery took place. I would especially notice in this case that within a few hours the temperature was reduced four degrees and afterwards remained normal. The constitutional disturbance was at once checked, although the membrane still remained on the uvula and left side of the throat. The new patch on the soft palate at once disappeared, and the appearance generally became more normal. The injection in this case, as in other cases where it has been used, was entirely innocuous, being

followed by neither local nor general disturbance. (The Lancet, October 6, 1894, p. 791.)

Diphtheria.—Antitoxin in.

Mr. Frank Godfrey, M.B. (Scarborough), reports the following case: G.L., aged 13, first complained of sore throat on September 3. The parents did not seek advice till September 7, by which date the disease was well established. The usual treatment was adopted temporarily, and antitoxin sent for. On September 9 the boy looked and was very ill. The temperature was 101·6°, the pulse 120 and fairly good; the cervical glands were very much enlarged, the tongue foul; the tonsils almost met in the middle line of throat, were of livid red colour, and their opposing surfaces as well as the uvula were covered with characteristic membrane; the nostrils occluded by an acrid, foul smelling, ropy discharge; there was great headache, and the boy complained of feeling very ill. At 10 a.m. I injected 60 minims (which was all the fluid sent me) of Aronson's diphtheria antitoxin solution into the subcutaneous tissue of the back at the base of the left scapula. All other treatment was stopped save frequent douching of the nares with hot boroglyceride solution. At 4 p.m. the temperature had risen to 103°, and the left arm was almost useless. Dr. Monk, who saw him then, described it as a genuine nerve paresis. At 8 p.m. the boy looked and expressed himself as being very much better. The temperature was 101·6°; there was no headache; the paresis of the arm had passed off, and he was taking food well; there was no albuminuria. On September 10 he was much the same, but flagged towards evening. On September 11 he was decidedly better, and was amusing himself with pencil and paper. The tonsils were paler and smaller, and the cervical glands smaller; the nasal discharge had lessened, but the membrane was present as before. On September 12 he was very much better. The nasal discharge had ceased, the membrane was disappearing, and the cervical glands were hardly perceptible. On September 13 the morning temperature was 98°, and he was generally much improved. After a visit from his father, whom he had not seen for some days, the temperature rose in the evening temporarily to 100°. On September 14 the membrane had all disappeared, the tonsils were much smaller and of natural colour, the tongue was cleaning, and, though pale and reduced, the boy looked remarkably well. Since then progress towards recovery has been rapid and uninterrupted. The rapid recovery of this case, which was a severe one; the fact that the antitoxin was not given till the sixth day of the disease, and that the single dose used was a small one, make it particularly interesting and encouraging. The passing nerve

paresis of the arm is difficult of explanation. (British Medical Journal, September 22, 1894, p. 655.)

Diphtheria.—Antitoxin Treatment.

Katz has brought before the Berlin Medical Society, in an important paper, the results of the treatment of diphtheria by antitoxin as carried out in the wards of Professor Baginsky. The fluid used was that prepared by Aronson for his experiments on animals. It was a yellowish, slightly-opalescent fluid, with a faint odour of phenol, and was found by experiment to be sterile. Katz began with doses of 3 to 5 ccm. directly after admission, followed by the injection of a similar amount next day. Later this was increased to 10 ccm., and now in very severe cases as much as 20 ccm. The ordinary treatment by sprays, insufflations, &c., was carried on as formerly, and tracheotomy and intubation done when indicated. From March 14 to June 20, the period during which this treatment was carried out, 128 children were injected with antitoxin. These represented with a few exceptions the total diphtheria admissions for that period, and in all Löffler's bacillus was identified by cultivation. The result was a total of 17 deaths, representing a mortality of 13·2 per cent. In the same time of the preceding year a death-rate of 37 per cent. was registered. The cases are grouped into four classes:—(*a*) Slight, where the constitutional symptoms are absent or slight, and the membrane is restricted; (*b*) moderately severe, in which the throat is extensively covered and the glands affected; (*c*) very severe, when the nose and other parts are involved, and the general symptoms grave; and (*d*) cases to which septic processes are superadded. Of the first class there were 47 cases, which all recovered; of 35 of the second 1 died; the third class had 42, of which 31 recovered, 11 died; while the 4 septic cases all died, With regard to the general effects produced by the remedy. Katz states that no unpleasant or injurious consequence was observed. It was of course, impossible to say, when a renal inflammation occurred in the course of treatment, whether it would have set in without an injection; but when it was present no apparent influence was exerted on it. Severe examples of nephritis did not show after the injection: on the contrary, some of them improved considerably. No action upon the heart was observed. A rash appeared in nine cases, starting chiefly in the needle puncture and lasting only a short time. The membrane in the pharynx was not much influenced, one way or other; but extension into the larynx was observed in no case after admission of the patient into hospital. There was no effect upon the course of the glandular swelling. The temperature and pulse-rate were scarcely altered, and com-

plications such as paralyses of various parts were not wanting. Death took place from the causes generally observed in such cases, such as extension of the membrane downwards, and heart weakness. Reviewing the results as a whole, Katz thinks that the favourable course taken by the cases, in spite of severe throat affection, points to the treatment by antitoxin as being of some value. On the suggestion of Aronson, a weaker fluid was employed for the purposes of immunisation. Of 72 children injected, 8 sickened after a time, all being, however, relatively mild cases, making a speedy recovery without complication. This experience has shown that much larger doses are necessary for immunisation if the result is to be better.—*Berlin. klin. Wochenschr.*, No. 29, 1894. (The Practitioner, October, 1894, p. 300.)

Diphtheria Cured by Antitoxin.

Dr. Thomas Eastes, of Folkestone, publishes the following case:—F. L., aged 10½ years, had on July 8 what appeared to be rather a severe form of catarrhal tonsillitis, with the glands at the angles of the jaw swollen and tender on both sides. On July 9 there was complete local evidence of diphtheria, the fauces were much more swollen, and the left tonsil was covered by thick membrane, there being less on the right. On July 10 both tonsils were very much swollen and projecting towards the middle line, and thickened so as to make a long and deep but narrow chink or channel between them, which was quite enveloped in thick yellowish white membrane, and getting blocked in front by the uvula, which was œdematous and becoming affected. At 1 p.m., July 10, I injected subcutaneously 5 c.c. of Aronson's diphtheria antitoxin, using Debove's syringe. On July 11 the swelling was less, the whole diseased surface clearly marked off from the healthy tissues and separation had commenced. Pulse until now about 92 to 96 every morning. She felt much better. On July 12, pulse 88. Much of the membrane separated, the remainder looks softened and breaking down, the surrounding tissues healthy, slight nasal catarrh and irritation, and a sore on the upper lip near the mouth, probably caused by the spray producer. July 13, pulse 83; much better; throat nearly clean, one patch about the size of half a pea on the left tonsil, and a few shreds scattered about; nose nearly well, On July 14, throat clean, glands not swollen or tender, pulse 72, child seems quite well. From the commencement I had used vigorous local treatment, with a spray of a strong solution of carbolic acid and iodine, and free doses of perchloride of iron internally, but the disease steadily advanced until July 10, when the injection was given. The swollen state of the throat was now so bad as to very much nullify any effect the

spray might have had when the diseased surface was fully exposed to its action; but the spray had hitherto utterly failed to prevent the local condition becoming very serious and typical of a very severe case. The improvement seemed to commence at once after the injection, as, twenty-four hours after, the surrounding tissues had improved considerably, and there was an evident line of demarcation where the diseased parts were already commencing to separate. I have never before seen a case in which improvement has been so rapid and so soon complete after such a continuous and dangerous increase in the local signs in spite of very thorough and energetic treatment. The antitoxin was supplied by Messrs. Zimmermann, Cross Lane, E.C. (British Medical Journal, July 21, 1894, p. 125.)

Diphtheria treated by Antitoxin.

I am indebted to Dr. Goodhart for kind permission to publish the case, which was under his care. J. C., aged 3 years, was admitted at 2 p.m. on June 23. It was said that he had been at play, and apparently quite well that morning. At mid-day he complained of his throat, and had croupy cough; and respiration soon became difficult. On admission there was considerable inspiratory stridor, and some "sucking in," above and below the clavicles, and also in the lower intercostal spaces. On the right tonsil was a patch of membrane. The tonsils and fauces were very slightly injected and swollen. The temperature was 102·4°, the pulse 140, and the respiration 34. The colour was good, but the child was distressed and restless. Tracheotomy seemed imminent, but the operation was deferred till bed and steam kettle had been tried. At 4.30 p.m. antitoxin ℥xj was injected hypodermically in the forearm, with strict antiseptic precautions. At 6 p.m. the patient seemed more comfortable. The temperature was 99·2°; respiration continued difficult, but the patient was less restless, and slept fairly well during the night. June 24.—The temperature was about 99° all day, the pulse 128, and the respiration 32. The child was again becoming restless, and stridor was increasing. Antitoxin ℥viij was injected at 4.30 p.m. June 25.—The stridor was much less. The child was playing and talking, and took solid food; the temperature was normal. From this time the stridor decreased. The child seemed perfectly well, playing and laughing merrily, although the cough remained croupy until June 27, and membrane persisted on the tonsil until June 30, that is, seven days. The diagnosis was made certain by cultivation from the membrane. The only additional treatment adopted was a steam kettle and tent bed, and brandy ℥xxx every four hours. A spray of iodine and carbolic acid was tried twice on June 23, but as the child objected it was not used

again. The antitoxin used (kindly given by Messrs. Zimmermann and Co.) was Schering's. Whether the favourable result was *post hoc* or *propter hoc*, it is noteworthy that the subsidence of constitutional disturbance was extremely rapid, occurring within a few hours after the injections; that the constitutional improvement occurred while the visible membrane persisted, apparently without corrresponding improvement; and last, but not least, that the injection would seem to be entirely innocuous, being followed by neither local nor general disturbance. (Mr. G. F. Still, British Medical Journal, July 28, 1894, p. 180.)

Diphtheria.—Treatment.

Weibgen (*Deut. med. Woch.*, July 19, 1894) describes the treatment pursued in Hahn's clinic since 1880. During the past few years it has been customary to apply an ice collar, and to order hourly gargling with a 4 per cent. solution of potassic chlorate, or, if much fœtor is present, with a $\frac{1}{4}$ per thousand solution of potassic permanganate. If gargling is impossible a spray is used. In nasal diphtheria the nose is syringed out with boracic acid (2 per cent.) or the above named permanganate solution; if bleeding occurs the nostril is plugged. In mixed infections it is said that large rectal injections (boracic acid 2 per cent.) are useful. If signs of laryngeal obstruction are present on admission it has not always been found necessary to do tracheotomy, as these symptoms may subside under the use of steam. If, however, the dyspnœa is urgent, and the child weak and somnolent with retraction of the soft parts, a low tracheotomy is performed at once. Pneumonia is not a contra-indication to tracheotomy, but marked sepsis is, the dyspnœa here being often due to the infection. The cannula is removed about the fifth or sixth day. If, owing to paralysis, the food gets into the larynx, the cannula is put in again. Sometimes it has been found necessary to feed the patient with a tube. The number of recoveries has steadily increased from 46 per cent. in 1880 to 63 per cent. in 1893 among the non-tracheotomised, and from 20·5 to 40 per cent. among the tracheotomised. The earlier in the disease the child was admitted the better the prognosis. Sixty-five cases have been treated with the specific serum; of these, 72 per cent. of the non-tracheotomised and 44 per cent. of the tracheotomised recovered. The epidemic, however, was of a mild type, and the author says that similar good results have been obtained in previous years in like epidemics. A definite conclusion upon the serum treatment cannot be given until larger numbers are forthcoming, and until the treatment has been in use over longer periods of time (see Epitome, May 5, 1894, par. 365). (Epitome, British Medical Journal, August 18, 1894, p. 27.)

DISINFECTION OF TUBERCULOUS DWELLINGS.

I believe I am justified in saying that the best method for disinfecting poor dwellings that have been contaminated by tuberculous patients is that by chlorinated lime, which should be carried out in the following way:—(1) A solution of chlorinated lime (1 in 10) should be prepared. (2) The walls, ceilings, and floor should be washed with this solution applied in the same way as lime or whitewash is usually applied. (3) This process should for safety be repeated three or four times in succession. By starting each time at the same corner of the room each layer would have time to penetrate into the paper and partly dry before the next is applied. (4) The room should then be closed as well as possible, a small safe petroleum stove being first placed in the middle of the room, precautions being taken to prevent any chance of fire. Over this stove a large tin basin full of water or chlorinated lime solution should be placed. (By a simply devised water bath arrangement a small capsule full of strong acetic acid or hydrochloric acid might be placed over the boiling water, and in this way acidity of the air would be secured. This would cause a more rapid setting free of chlorine.) Disinfection carried out in this way should be complete in less than three hours. It is even probable that several of the additional precautions which I recommend are not absolutely necessary. The use of hydrochloric acid is the most objectionable addition from a practical point of view, for HCl. causes great damage to metallic fittings. Chlorinated lime itself does not spoil things as much as one would expect, and can be used as indicated in rooms from which all hangings and carpets have been removed without any fear of damage, provided the walls and ceilings are not decorated with valuable paintings or papers. In the poor dwellings it is evident that this is not an obstacle to its use. The quantity of bleaching powder required for a room measuring 10 feet in all dimensions would not be more than 6 oz. and the quantity of water 3 pints. Small petroleum stoves, perfectly safe and giving much heat, can be obtained for a few shillings, and large tin dishes for a few pence. (Prof. Shendan Delépine.—Owens College Medical Chronicle, May, 1894, p. 94.)

GRAVES'S DISEASE.—Splenic Pulsation in.

Gerhardt (*Neurol. Centralbl.*, No. 5, 1894) has previously noted splenic pulsation in aortic incompetence. In a woman, age 32, the subject of Graves's disease of three months' duration, he observed the following conditions—exophthalmos, large pulsating bronchocele, dilatation and hypertrophy of the left ventricle with systolic *bruit* loudest at the apex, pulse seldom under 100, occasionally 200. During the attacks of tachycardia there was

flushing of the face with capillary pulsation; the front end of the spleen was seen to pulsate strongly when the patient lay on her right side. Tracings of this pulsation showed modifications due to the respiratory movements. In four out of eight previously examined cases Gerhardt has detected splenic pulsation and he believes that the condition might be found more often if looked for. He thinks that in strong patients with compensated aortic insufficiency the spleen pulsates only when enlarged by acute infective disease; while, on the other hand, in Graves's disease splenic pulsation may exist for months without other affection being present. (Epitome, British Medical Journal, April 21, 1894, p. 61.)

GUAIACOL.—Its External Application as an Antipyretic.

[Dr. Thayer, Resident Physician to the Johns Hopkins Hospital, concludes an article on this subject as follows:]

From the few experiments which we have made here, and from a consideration of the results obtained by other observers, we are perhaps justified in asserting that guaiacol applied to the skin is readily absorbed into the economy; that its application is followed in most instances of fever by a gradual reduction in temperature, which reaches its lowest point generally between three and four hours after the application; that this fall of temperature is almost always associated with disagreeably profuse sweating; at a variable period, usually a short time after the lowest point is reached, the temperature rises rapidly, generally in association with marked chilly sensations, if not with an actual chill; that a dose of more than 2 cc. is rarely advisable; that exactly similar results are produced by the absorption of guaiacol through any other channel (the rectum or the subcutaneous tissues); that the antipyretic action is exactly similar to that which has been previously observed to follow a corresponding use of creasote and carbolic acid; that owing to the disagreeable effects of the immediate application of guaiacol (sweating and chilliness), and the weakening effects of the continued use, its employment as an antipyretic, as in the case of carbolic acid and creasote, will probably have but a limited application. (Medical News, March 31, 1894, p. 347.)

GUAIACOL AND CREASOTE IN FEVER.

V. P. Kravkoff (*Vratch*, No. 16, 1894) has tried inunctions of guaiacol and beechwood creasote in two cases of enteric fever and one of phthisis. In five of his thirteen experiments guaiacol, and in eight creasote, was employed, the former being always used pure, the latter either pure or in equal parts of alcoholic solution, or in a mixture with *vodka* (20 drops to ℥ ij of brandy), or in

the form of a vaseline salve (20 drops to ʒ j). Twenty drops of one or other of these substances were applied on each occasion except once, when the dose was 30 drops. The substances were invariably rubbed into the abdomen, the frictions being made with the forefinger and continued for two or three minutes, after which the abdomen was covered with a warm compress. The results were as follows:—(1) The temperature always fell rapidly, becoming normal in 12 cases about two hours after the inunction, and keeping at the normal point from three to four hours, when creasote *in substantiâ* or in an alcoholic solution was used—from one to three hours in the case of guaiacol, about one hour and a half in that of the creasote salve, and less than one hour in that of the *vodka* solution. (2) The defervescence was usually accompanied by very profuse perspiration, and followed by retardation of the pulse and respiration. (3) Neither collapse, nor failure of the pulse, nor cerebral symptoms were ever observed. On the contrary, consciousness always brightened, the subjective state improved, and appetite was excited. (4) The only unpleasant accessory phenomena consisted in occasional vomiting in the two typhoid patients (one of whom could not generally tolerate many other strong-smelling substances, such as camphor, naphthalin, &c.). On the whole, Kravkoff is satisfied with the results of his experiments. (Epitome, British Medical Journal, July 14, 1894, p. 7.)

INFECTIOUS DISEASES.—Coexistence of.

At the Epidemiological Society, on April 18, 1894, Dr. Caiger read a paper on the coexistence or close succession of two or more infectious diseases in the same individual. His experience at Stockwell had satisfied him that such concurrence of infections was as frequent as mere probabilities would explain, and that, so far from affording protection against other diseases, some certainly increased the susceptibility thereto. In the last four years he had seen 362 cases of two, and 17 of three, diseases running some part of their courses concurrently; in 200 of these the acute febrile stages of two or three coincided. The priority of the several diseases was calculated from their known incubation periods. The primary disease was scarlatina in 197 cases, which was complicated by diphtheria in 97, varicella in 43, measles in 31, whooping cough in 13, erysipelas in 10, enteric in 2, and typhus in 1. Scarlatina was a complication in no fewer than 88 among 97 in which the primary disease was diphtheria, in 20 among 23 of varicella, in 14 of 17 of whooping cough, in 6 of 9 of enteric, and 9 of 18 of measles, though here diphtheria accounted for another 7. Among the 17 triple attacks scarlatina was the primary disease in 9, and a complication in 4 only, diphtheria holding the highest place with 9.

During the past six years 48,367 cases of scarlatina had been admitted into the hospitals of the Asylums Board; of these, 3,166, or 6·54 per cent, were complicated, 1,094 with diphtheria, 899 with varicella, 703 with measles, and 404 with whooping-cough, the relative numbers of diphtheria and whooping-cough being probably owing to the fact that many had already had whooping-cough in infancy, while diphtheria, though less frequent, might and often did recur: these four diseases accounted for 3,100, or all but 66. The questions suggested by these figures were (1) did any disease render the individual less or more susceptible to infection by another; (2) did the primary disease in any way influence the course or character of the secondary one as regards (*a*) incubation, eruption, &c.. periods; (*b*) severity of the disease; (*c*) distribution of local phenomena; (*d*) liability to sequelæ and other complications. The conclusions at which he had arrived, after eliminating the influence of age incidence, seasonal prevalence, actual frequency, &c., were, first, that there was no such thing as antagonism between any, but rather the reverse, increased susceptibility being brought about generally or locally; that is, first, by the lessened power of resistance induced by a disease attended with grave constitutional disturbance; and, secondly, by the local inflammations, &c., facilitating the development of the contagia of diseases known to affect the mucous membranes or tissues in question. Thus an attack of varicella exerted no influence on any that might follow, but when scarlet fever was the primary disease, varicella, favoured also by the quasi-dermatitis left behind, might rival unmitigated small-pox in intensity of fever and extent of eruption. Scarlatina was frequent and dangerous after diphtheria, but diphtheria following scarlatina was still graver, since the scarlatinal throat, teeming with staphylococci and streptococci, was a perfect soil for the bacillus of Löffler. So, too, while the general phenomena of measles might be aggravated by previous diphtheria or scarlatina, and in the latter conjunction the rash would be intensified, an attack of diphtheria following on measles was even graver than the post-scarlatinal, since it inevitably attacked the larynx and trachea, and tracheotomy was very rarely of any avail. Measles and whooping-cough were known to follow one another or to coexist, mutually increasing the susceptibility of the individual. He had never found the incubation period of a disease affected, but the presence of scarlatina accelerated the appearance of the rash in measles by a couple of days. It was, however, necessary, especially in the diagnosis of scarlatina and diphtheria, to be on one's guard against certain errors. The rash of scarlatina might assume a morbilliform appearance, and there was occasionally in simple cases of scarlatina, at the height of the faucial

inflammation, an exudation on the tonsils closely resembling that of diphtheria. It did not, however, tend to spread, like the diphtheritic, to the air passages; and, if it did not disappear shortly, might be followed, as Henoch first pointed out, by a superficial ulceration or even a deep sloughing, and Löffler's bacillus was absent. Measles, when preceded by scarlatina, was very apt to be followed by pulmonary complications. An intercurrent attack of measles sometimes suspended for the time the paroxysms of whooping-cough, but this combination of diseases specially affecting the respiratory organs was frequently attended by broncho-pneumonia. (British Medical Journal, May 5, 1894, p. 969.)

LEUCOCYTHEMIA.—Splenectomy in.

The following is taken from an admirable review of the present position of the surgery and physiology of the spleen by Dr. James P. Warbasse:—There have been reported 28 cases of laparosplenectomy for leukæmic hypertrophy; 25 of these died from the immediate effects of the operation; 20 died from hemorrhage during the first twelve hours after the operation, 2 of septic peritonitis, and 1 of shock. In two cases the cause of death is not stated, though hemorrhage was the probable cause, because death took place within five hours after the operation. But three cases have survived. Franzolini's case was one of mild leukæmia with a moderately enlarged spleen, and was permanently cured, the blood being normal at the end of three months. Bardenheuer's patient died thirteen days after the operation of general prostration from the disease. The patient upon whom Burkhardt operated went eight months, and then died of weakness from the progress of the disease. It is, therefore, evident that out of these 28 cases but 1 cure is reported; and the diagnosis of this case must be looked upon with some doubt. The cases of Burkhardt and Bardenheuer have demonstrated that the operation can be carried out successfully in extreme cases of leukæmia with very large tumours, but that, even when the great danger of hemorrhage has been overcome, the patients subsequently perish from the exhaustion of the disease. The conclusion which would be drawn from these facts is that extirpation of the spleen does not cure the disease, but that it is a disease of other tissues as well, and continues to exist when this organ is removed. It is, therefore, according to Vulpius, very probable that the observations of Franzolini are faulty. The leukæmic tumour of the spleen is absolutely not to be operated upon in cases of advanced disease —that is, when the blood-cell ratio is 1:50. Only in cases in which there are but slight changes in the blood and when the tumour causes great inconvenience can operation enter into

consideration. This, of course, would be very rare, for a very large spleen would be found with marked blood-changes. In no case, then, can the operation be hoped to do more than relieve the immediate symptoms arising from the physical presence of the tumour. We know that in the treatment of the operable splenic tumours the ordinary surgical and mechanical principles come into play. In the case of the leukæmic tumour, at least this is not the case. Here we have to deal with a tumour which is but an incidental complication of a fatal general disease. Something more than the mechanics of surgery must be brought to bear in this case. This is not for those gentlemen to treat who, in the fulness of their operative zeal, would extirpate whatever abdominal tumour is removable. The examination of the blood, and a study of statistics are matters of prime importance. (Annals of Surgery, August, 1894, p. 207.)

MUMPS.

Martin (*Rev. de Méd.*, March, 1894) reports an epidemic in which 48 men out of a garrison of 450 to 500 were affected. The exact origin of the disease could not be traced. After a few hours of *malaise*, &c., and a slight rise of temperature, which rarely exceeded 38° C., and which was often absent, the characteristic swelling began. This was marked in many cases, and extended over the neck in four. The temperature mostly fell on the second day, but rose again if the other side became involved. If orchitis supervened, it rose to 40° or 41° C. Antiseptic mouth-washes (boracic acid) were used in all cases. Antipyrin appeared to help in promoting resolution and lessening pain, and the results were better than with the so-called expectant treatment. Pilocarpin, of doubtful service in the attack itself, is of value in the orchitis. The average duration of treatment was fifteen days. Rigid disinfection was adopted when the patient was discharged. The complications were benign, epistaxis and gastro-intestinal disturbances being the most common. The author looks upon the orchitis as being the second degree of the poison rather than a complication; it was present in nine cases, or 18 per cent., being once bilateral. Otitis externa was present once, a complication which the author has seen before. He has also seen slight albuminuria, but not in this epidemic. In other epidemics reported by him the application of camphorated oil or mercurial ointment was without effect, and jaborandi was inactive in some cases and harmful in many others. Tartar emetic seemed more useful. The exciting cause of the disease exists in the mouth and spreads to the glands, along the ducts, hence the value of antiseptic washes. In one of the cases the nature of the orchitis

might easily have been overlooked owing to the great mildness of the mumps. The use of sulphur as a disinfectant appears valuable, but it is not always possible. The sick must be isolated, their clothes, &c., disinfected, and buccal antisepsis may be used as a prophylactic. (Epitome of the British Medical Journal, August 14, 1894, p. 57.)

SALOPHEN.

Dr. H. Köster has found in about 30 cases of acute articular rheumatism the pains rapidly diminished, generally within four days completely disappearing after the ingestion of fifteen-grain doses. The effusion diminishes and the temperature falls, and this occurs without the appearance of unpleasant symptoms. In spite of its use in two cases other joints were invaded, and in four there was noticed an onset of pain after it had already disappeared. In acute muscular rheumatism in a few cases favourable results were obtained. In chronic articular rheumatism the pains were lessened in some cases, but in the few cases under observation the results were generally negative. As an antipyretic it was useful, but it could not be depended upon for producing a marked depression of temperature. Better results were obtained in neuralgic and similar affections—headaches, hemicrania. In six cases of exudative pleuritis it seemed to have no marked effect upon absorption of the effusion. He concludes that, although it is a powerful remedy in acute rheumatic diseases, and a useful one for neuralgias, it is not of importance as an antipyretic.—*Therapeutische Monatshefte*, 1894, Heft 1. S. 17. (The American Journal of the Medical Sciences, April, 1894, p. 444.)

SCURVY IN INFANTS.

In the light of our present knowledge we may draw the following conclusions :—(1) Scurvy may appear at any period of infancy or early childhood, but it is most common between the ninth and fourteenth months. (2) The lesions are hemorrhagic in character, due probably to diapedesis. The most characteristic are subperiosteal hemorrhages. Hemorrhages into the muscular tissues, into the skin, and mucous membranes are more or less constant. (3) It occurs in every grade of the social scale, but is more frequent among the rich than among the poor. The neglected child who eats everything at the table may become rhachitic or marasmic, but he obtains enough fresh food to protect him from scurvy. It very rarely occurs in asylums and hospitals, because in recent years feeding in such institutions has been more rational than in many private families. (4) Lack of fresh food is the most important cause. The use of the proprietary foods and condensed milk produces more scurvy than all other causes combined. Even fresh milk

in small proportions is not sufficient to insure protection. (5) Anæmia and malnutrition are almost invariably present; a peculiar sallow complexion is common. (6) Scurvy is frequently superadded to rhachitis, but in a considerable number of cases no evidences of rhachitis are present. So-called acute rickets is in most cases, probably in all, rickets complicated by scurvy. (7) Pain is a constant symptom; it develops early and is usually intense. (8) A varying degree of immobility of the extremities is common, and is frequently so marked as to simulate paralysis. This pseudo-paralysis disappears with the subsidence of the scorbutic symptoms. (9) Subcutaneous hemorrhages, as well as hemorrhages from the cavities of the body, are very common, but are not necessary to a diagnosis of scurvy. (10) The condition of the gums is characteristic. They are purplish, soft, spongy, and bleeding, and frequently show decided ulcerations. When the teeth have not been erupted, changes in the gums are usually slight or entirely absent. (11) Painful swelling of the lower extremities is the most constant symptom; the upper extremities are rarely involved. The thigh is affected more frequently than any other region. (12) Children suffering from scurvy commonly present the following symptoms: Anæmia, intense pain on motion, spongy and bleeding gums, swelling of the lower extremities, usually at the thigh. There may also be purpura or ecchymoses, discharge of blood from the various cavities of the body, and pseudo-paralysis. (13) Scurvy, when untreated, is a very fatal disease; when recognised and properly treated a rapid and complete cure is usually effected. The result of antiscorbutic treatment is, in fact, one of the most certain means of diagnosis. (14) Scurvy may be mistaken for rheumatism, stomatitis, rickets, sarcoma, osteitis, and infantile paralysis. (15) Scurvy is a dietetic disease, and must be cured by dietetic treatment. Fresh milk, beef juice, and orange juice are the most effective remedies. (Drs. Northrup and Crandall, New York Medical Journal, May 26, 1894, p. 645.)

TRIONAL.—Its hypnotic action.

The action of trional forms the subject of a graduation dissertation by Dr. Otto Bakofen of Freiburg (Baden). This substance, which is allied to sulphonal, differs from it chemically in possessing an additional ethyl group, being di-ethyl-sulpho-methyl-ethyl-methane, while sulphonal is di-ethyl-sulpho-dimethyl-methane. The first observations on the hypnotic action of trional were published by Barth and Rumpel, who gave an account of seventy-two observations made on forty patients in the new Eppendorf Hospital, Hamburg, success being obtained in sixty-four instances. It was remarked that

trional acted in many cases better than sulphonal, and that no troublesome symptoms were produced by medicinal doses. Since that time numbers of papers have been published on the effects of trional—*e.g.*, by E. Schultze of the Bonn Asylum; M. Horváth of Budapest; Schäfer, Ramoni; Boettiger of Halle; Raimondi and Mariottini of the Sienna Policlinic; Brie of the Bonn Asylum; Beyer of the Strasburg Psychiatric Clinic; Hammerschlag of Professor Jolly's Psychiatric Clinic in Berlin; Garnier of the Dijon Asylum; Giulo, and Allesandro. Amongst these and other writers there seems to be a remarkable unanimity. Trional appears to act particularly well in the very cases of insomnia where most other drugs refuse to produce any effect. In primary insomnia and in the sleeplessness of lunatic and alcoholic patients it seldom fails. It is spoken of most highly by Collatz in cases of sleeplessness in patients suffering from serious cardiac disease. According to some experiments on dogs, carried on in the Freiburg Pathological Institute, it was found that, whereas sulphonal did not produce sleep for two hours and a half, trional was effective in twenty minutes. When very large doses were given for several days—*e.g.*, 6 grains per diem to a dog weighing about 3 lbs.—death ensued, which appeared to be due to paralysis of the central nervous system. A careful examination of the kidneys was made, and beyond a certain amount of hyperæmia nothing abnormal was found, and especially nothing to indicate any tendency to obstruction in the glomeruli. Occasionally, under special circumstances, as in a case of a dying lunatic mentioned by Schultze, hæmatoporphyrin has been found in the urine. In the dogs which were poisoned with trional, the brain, heart, liver, and gastro-intestinal system were all found normal. The ordinary dose of trional may be put down at from 8 to 30 grains. A case is related by Collatz, where a young man who suffered from epileptic fits attempted to commit suicide by swallowing 120 grains of the drug. In about a quarter of an hour he had an epileptic fit, which lasted about five minutes. He then complained of nausea, but did not vomit. He then went to sleep and slept twelve hours, his pulse and respiration being normal. The next day he slept a great deal, and in the evening complained of abdominal pain and retention of urine, for which a catheter had to be passed and 400 c.c. drawn off. This was of a dark amber colour, and free from albumen, sugar, and hæmatin, On the succeeding day the man was quite well. (The Lancet, July 28, 1894, p. 212.)

TYPHOID FEVER.—Use of Hypnotics in.

While deprecating a premature resort to sedatives of any kind in typhoid fever, as in other conditions, when cold sponging

fails to soothe the patient, and when it is clear that the restlessness and want of sleep are not due to flatulent distension of the stomach or other removable cause, it is, in my judgment, better to secure sleep by drugs than to allow the patient to pass wakeful and miserable nights. The drug I prefer is opium in some form or other. Phenacetin or antipyrin will often relieve the initial headache and give sleep, and phenacetin as the least mischievous member of the group may be given once or twice, but these substances are depressing, and, at the outset of a long and exhausting illness, any deduction from the sum total of the patient's forces is to be avoided. Chloral, again, distinctly lowers the vigour of the heart's action and relaxes the arterioles, imitating thus the effects of fever on the circulatory apparatus. Experiment, moreover, has shown that it paralyses the phagocytes and renders them inert in the presence of bacilli which they would otherwise attack. Chloral is therefore inadmissible, and, it may be added, is usually ineffectual. Bromidia, which may be looked upon as chloral in disguise, often ordered, I fear, in ignorance of its composition, I should emphatically condemn. Bromides are less open to objection for occasional use, but are seldom of real service. When, therefore, a remedy for sleeplessness is needed it should, in my judgment, be sought in one or other of the preparations of opium or morphia. It has been objected that opiates derange the digestion. This has not been my experience, but they may be employed to disguise the effects of flatulence, the result of digestive derangements which ought to have been corrected. (Sir William Broadbent's Cavendish Lecture, The Lancet, August 25, 1894, p. 424.)

Typhoid Fever.—Uses of Purgatives in.

One of the effects of septic processes in the contents of the intestine is diarrhœa, the character of which may be recognised by the offensive and sometimes putrid smell of the evacuations, differing from that of the typhoid stools, strictly speaking. The colour is often dark and not unfrequently the consistence is watery with brown particles of flakes in suspension, quite unlike the pea-soup typhoid stools. The abdomen at the same time is often distended with gas, and the temperature may be considerably raised by absorption of septic products. Diarrhœa caused in this way is most frequent early in the disease and is most common in patients who have indulged in alcohol or in excess of food. It may also be due to continued consumption of solid food after the fever has set in. The treatment I have found most efficacious in diarrhœa due to sepsis of the intestinal contents is the administration of perchloride of mercury, which I have usually given in doses of one drachm of the solution

with one grain of quinine every three or four hours for twenty-four or forty-eight hours. Calomel in repeated small doses of one-third of a grain every three or four hours is equally effectual; the diarrhœa has almost always, n my experience, been checked, the abdomen subsiding and the temperature falling one or two degrees. The entire aspect of the case is usually changed. So favourable has the effect of the perchloride been that I have often been induced to continue its administration in small doses of half a drachm three times a day through a great part of the fever. A common practice in Germany is to initiate the treatment of a case of typhoid fever by two or three grains of calomel on two successive days. Without going so far as to recommend this, I think it would prevent diarrhœa such as I have just described, and at the outset of the attack a single dose would probably be beneficial in most cases. During the first few days of the disease, when the diagnosis is still in doubt, few patients escape an aperient of some kind ; it should in my judgment be a rule of practice not to let this be of an irritant kind; a couple of grains of calomel, alone or with a grain of extract of hyoscyamus, followed if necessary by a mild saline, will clear out the bowels, carrying off both fermentescible material and fermentative organisms without aggravating the catarrh or irritating the inflamed Peyer's patches, and will at the same time disinfect the intestinal tract, while colocynth or compound rhubarb pill or liquorice powder might set up a troublesome diarrhœa. More formidable than local irritation or aggravation of the catarrh of the small intestine are the effects on the nervous system of absorbed products of bacterial action on the intestinal contents. Other bacteria besides the typhoid bacillus may effect an entry into the blood through the lesions in Peyer's patches, but it is the ptomaines formed by their activity in the alimentary canal which constitute the poisons. Sometimes with diarrhœa of the kind just described, with high temperature and tumid abdomen early in the disease, there is either wild, maniacal delirium or great stupor and heaviness. These are cases attended with extreme danger. The good effects of the employment of the perchloride of mercury or calomel are frequently seen in the mitigation of the nervous symptoms as well as in the alleviation of the intestinal irritation. Without fever intestinal ptomaines may give rise to headache, languor, stupor, and even coma, which disappear with the clearing out and disinfection of the alimentary canal; and in the course of typhoid fever much graver symptoms of the same kind may appear. They are entirely foreign to the normal course of the disease as usually observed, and are obviously due to some other poison than that produced by the typhoid bacillus. (Ibid., p. 424.)

Typhoid Fever.—Treatment of Hemorrhage in.

One of the most important effects of the intestinal lesion is hemorrhage. The liability to this complication cannot be said to be proportionate to the pain, distension, and diarrhœa which have attended the attack, though it is more liable to occur when these evidences of intestinal disturbances have been present. Sir William Jenner pointed out with perfect accuracy that hemorrhage or perforation was to be looked for when the initial headache had been unusually severe and protracted. The ulceration in such cases, even when not particularly extensive, is liable to be deep. Enlargement of the liver is another common antecedent. When it occurs early in the attack—say at the tenth or twelfth day—it is always attended with serious danger. After the eighteenth day, while a source of anxiety when the amount of blood lost is considerable, it may usher in convalescence, the temperature, which usually falls on the occurrence of copious bleeding, sometimes not rising again. Whenever sloughs or clots are found in the stools a careful look-out should be kept for hemorrhage. Its occurrence may often be recognised, before blood is passed from the bowel, by pallor of the face, weakness of the pulse, and a rapid drop of the temperature, and the colon may be felt to be full and heavy in the right loin. The treatment on which I have come to rely is the placing of a large ice-bag over the right iliac fossa, the administration of a full dose of some liquid preparation of opium, and the subcutaneous injection of ergotin. Ten or fifteen minims of turpentine may also be given every three or four hours. The object of the opium is to paralyse the bowel. The blood poured out into the intestinal canal excites peristalsis, and the peristalsis in turn tends to prevent the formation of clot on the bleeding surface, which might seal up the vessels. It must, therefore, be arrested ; and it is because opium given by the mouth appears to effect this better than morphia hypodermically that this method of administration is preferred. Half a drachm of laudanum, or its equivalent of liquor opii, may be given at once. Opium, again, seems to have a certain sustaining power. Astringents, supposed to act directly on the bleeding vessels, are useless; long before they have traversed the twelve or 16 feet of bowel to reach the ulcers they will have combined chemically with its contents, and will have expended their power of coagulating blood or astringing tissues. When the medical man lives at a distance from the patient, the nurses should be provided with an ice-bag, laudanum, and hypodermic pellets of ergotin, and have instructions to employ them immediately on the occurrence of serious hemorrhage. Great caution must be exercised in administering stimulants. The half-fainting condition affords the best opportunity for the

bleeding to cease, and the longer the patient can be kept in this state with safety the greater is the chance of the arrest being final. (Ibid., p. 426.)

Typhoid Fever.—Treatment of Tympanites in.

In the course of the fever more or less distension of the abdomen very commonly supervenes. This is partly, but not altogether, an effect of the inflammation of Peyer's patches and of the intestinal mucous membrane through paresis of the muscular coats. When accompanied by decided local tenderness and general tension it may be looked upon as due to the intestinal lesions, and it may be treated, according to associated general conditions, by cold water compresses—*i.e.*, a single layer of thin flannel, linen, or calico, kept wet with water at any temperature thought best, or made cold by particles of ice, or, as just said, by opiate fomentations or a light poultice. But the paresis of intestinal walls which allows of general abdominal distension is not always a direct effect of the lesions in the mucous membrane. It creeps on together with delirium, stupor, muscular tremor, and subsultus tendinum, and, like them, is evidence of failure of nerve power, and the treatment required is the same. Occasionally there is acute tympanites, a quite sudden and extreme distention of the abdomen. It marks extreme nervous prostration and may be accompanied by retention of urine. When it comes on early in the disease it is one of the most fatal prognostic indications and at every period is a sign of great danger. Stimulants avail nothing against it ; strychnine hypodermically may be of service, but, according to my experience, the remedy of greatest value is opium, which to be of any use must be given in considerable doses—half a drachm of laudanum, repeated in an hour or so, or even one drachm in extreme cases. I have known several lives saved in this way, and have never had reason to repent having given a large dose under such circumstances. (Ibid., p. 425.)

AFFECTIONS OF THE NERVOUS SYSTEM.

CEREBRO-SPINAL SURGERY.

At the International Medical Congress (1894) Professor Macewen (Glasgow) discussed the causation of intracranial abscess, and demonstrated by means of drawings and specimens the mode of operating which he followed. He said (1) that all abscesses of the brain are formed subsequently to a primary focus of infective diseases situated elsewhere ; (2) that the chief infective foci are formed in connection with middle-ear disease ; (3) that abscesses of the brain, originating in middle-ear disease, are

generally in direct contact with the primary source of infection ; (4) that such abscesses are generally best reached in the first place through the mastoid antrum ; (5) that the mastoid antrum is most easily opened through the supramental triangle, from which the whole tegmen antri and tegmen tympani may be exposed ; (6) it is necessary to remove the whole infective tract ; and (7) after this has been done the skull is trephined over the temporo-sphenoidal lobe of the brain. (British Medical Journal, April 21, 1894, p. 857.)

Cerebro-spinal Surgery.

At the International Medical Congress (1894) Dr. Lucas-Championnière read a paper on the operation of trephining, founded on 64 cases on which he had operated. In 54 cases the operation was done for diseases or old-standing injury, in 10 for recent injury. In performing the operation the bone was laid bare by reflecting a flap ; the trephine, which might be of any desired size, was then used, and the opening enlarged if necessary with curetting forceps. Over-refinement in localisation before operation was not to be commended, as it was in every respect better to make a large aperture in the skull. The 10 operations for recent injury had given on the whole satisfactory results ; three patients whose condition was desperate succumbed, but others who appeared to be in a state not less desperate had recovered ; one patient had already survived for nineteen years. The 54 cases done for old-standing mischief afforded still more striking proof of the harmlessness of the operation ; only 7 deaths had occurred, and in all a fatal termination seemed almost certain before the operation was undertaken. In two cases life was probably shortened by the operation. There were examples of wide-spread diffuse lesion, and in such cases the amount of shock was considerable. In conclusion, he said that the field of intracranial surgery was not limited by limitations of the power of precise localisation. In certain conditions producing general symptoms, such as compression, the opening of the dura mater might produce very striking results. True epilepsy and periencephalitis also might be benefitted, especially if the operation was undertaken early enough. The operation itself was not dangerous ; he had never encountered suppuration. (Ibid., p. 856.)

CHOREA.—Treatment.

Dr. Dujardin-Beaumetz believes that the chorea of Sydenham can be divided (1) as to its rheumatic origin, and (2) that connected with hysteria. For the rheumatic chorea, sodium salicylate frequently leads to unexpected disappointments, and antipyrine seems to be the more active remedy ; fifteen grains

at each meal, in "sirop de punch," cure resulting in from two to three weeks. In the chorea of hysterical origin, antipyrine is inferior to potassium bromide. Exalgine has not given the good results recorded by several writers, although it has not been given in the large doses recommended. In severe cases, when antipyrine does not suffice, sleep can be obtained with chloral, which is well borne by children, even in large doses, forty-five to even seventy-five (!) grains in the twenty-four hours. If there are cardiac complications it is necessary to use great care in using cold douches, or, indeed, the ether spray, along the spinal cord. Gymnastics are inapplicable in the paralytic form, and impossible in those who cannot make the gymnastic movements; and in severe cases, instead of regulating they exaggerate the incoördination. In the period of decline they may be useful. For the hysterical form potassium bromide, in large doses, and hydrotherapy give the best results. For the anæmic individuals it may be necessary to add tonics, or to administer arsenic at the same time with the bromides. Arsenic given alone is not believed to be a curative agent, but associated with the bromides it manifests its tonic properties, and as well prevents the bromide-acne. Massage, in the later stages, is indicated, and as well gymnastics, with the reservations above noted. In the paralytic forms the bromide is contra-indicated, and wrapping in the wet sheet is recommended. Subcutaneous injections of hyoscine hydrochlorate, $\frac{1}{64}$ to $\frac{1}{32}$ gr., may be used in severe cases. Above all, it is important to feed the patients, and to use metal cups instead of glass, thus avoiding accident. *Bulletin général de Thérapeutique*, 1894, 10e liv., p. 193. (The American Journal of the Medical Sciences, June, 1894, p. 712.)

CROSSED KNEE-JERK.

At the American Neurological Association, May, 1894, Dr. Guy Hinsdale and Dr. J. Madison Taylor, of Philadelphia, read a paper on "Crossed Knee-jerk," based on studies of over 1,000 cases of nervous disease observed at the Infirmary for Nervous Diseases, Philadelphia, and the Institutions for Feeble-minded Children at Elwyn, Pennsylvania, and Vineland, New Jersey. By the term crossed knee-jerk is meant that when the patellar tendon is struck the opposite leg is instantly made to approach its fellow; the phrase "in knee-jerk," or "contra-lateral knee-jerk" may also be used. The movement observed in the limb opposite to that of which the patellar tendon is struck is not an extension of the leg so much as an adduction of the thigh (vastus internus and crureus). The best attitude for eliciting the movement is by seating the subject at ease in a chair, with the body erect, and the knees ten or twelve inches apart, with the knee-joint at rather an obtuse angle, the feet being

advanced a few inches. The phenomenon is observed in a small proportion of normal persons, and in from 20 to 30 per cent. of the cases coming to a clinic for nervous diseases. It is distinctly proved not to be due to a communicated shock or jar to the pelvis by reason of its absence in all cases of locomotor ataxia, and its production in favourable cases on suspending the subject from the floor and observing the adduction of the thigh on tapping the patellar tendon, or, as in one case observed, tapping the tendo Achillis. The crossed knee-jerk is also found to be reinforcible. Reinforcement induces the movement in some cases in which it is not otherwise evident. A case was related in which a very slight tap on the patellar tendon caused violent contractions of both legs, so that the knees are brought together or cross over ; a larger tap will cause, in addition, crossing of both arms in a sort of lock-spasm, requiring aid afterward in stretching out the limbs. The reflex arc involved in movements of this kind is held to embrace the cerebrum. (Medical News, July 21, 1894, p. 79.)

FRIEDRICH'S DISEASE.

At the Manchester Medical Society, on April 4, 1894, Dr. Dreschfeld showed two cases : (1) A girl, aged 18. No other member of the family affected, no history of alcoholism in the parents. Ten years ago she noticed that she could not walk so well ; five years ago, after an acute febrile attack, she became worse, and was much affected in her walking ; and three years ago, after another acute febrile attack, she got much worse, and since then had not been able to walk or stand by herself. She was of diminutive size. Slight horizontal nystagmus on fixing a certain object, when the muscles of the neck also showed slight movement, and speech affected. The upper extremities showed inco-ordination, the lower extremities marked inco-ordination. There was both static and motor ataxy ; the superficial reflexes were present, the deep reflexes absent. There was no anæsthesia, and no affection of the bladder and rectum. The patient complained of slight pains in the arms and legs. The toes were forcibly flexed, and there was beginning talipes. (2) A boy, aged 16. No other member of the family affected ; father was a drunkard. The symptoms date from early infancy. The patient is able to stand and walk, but his gait was markedly ataxic. Occasional slight nystagmus ; no affection of speech, tremor of tongue. Upper extremities showed slight inco-ordination, lower extremities marked inco-ordination. The peronei and tibialis anticus were weak and somewhat atrophied ; the big toes hyperextended ; the appearance of the foot when in recumbent posture resembled that seen in the early stage of peripheral neuritis. The electric reactions, however, were

normal, the superficial reflexes, except plantar reflex, were normal; the deep reflexes absent. There was no anæsthesia; when walking or standing there was marked lordosis. No affection of the bladder or rectum. Intelligence fairly good, growth somewhat stunted. With the peroneal type of myopathic atrophy this case, owing to the atrophy and weakness of the peronei, had some resemblance; but the marked ataxy, the absence of anæsthesia, and the normal state of the electrical reactions were sufficiently distinguishing. (British Medical Journal, April 21, 1894, p. 862.)

HEMIPLEGIA AFTER DIPHTHERIA.

Edgren (*Deutsch. med. Woch*, 1893, No. 36), after alluding to the rarity of records of such cases, refers to Auerbach's case (*ibid.*, 1892, No. 8). This was one in which an apoplectic attack left atypical hemiplegia in a patient with acute nephritis following diphtheria. Apart from this the symptoms of ordinary diphtherial paralysis developed. The hemiplegia was looked on as the result of a hemorrhage into the anterior two-thirds of the posterior arm of the capsule. The persistence of the motor paralysis made it almost certain that it was not the result of uræmia, and the mode of commencement excluded embolism, The hemorrhage may be explained by the alteration in the vessel-walls which results in all infectious diseases, or by the elevation of blood-pressure consequent on the severe nephritis. Edgren records a similar case of his own. He is of opinion that the paralysis is of cerebral origin, and that the internal capsule of the opposite hemisphere is the seat of the lesion. Most probably it is a hemorrhage which is so far related to the diphtheria that the vessels become degenerated and rupture through the infectious disease. As in the multiple neuritis of the ordinary post-diphtherial paralysis, so also in the rare hemiplegic form, changes occur in the blood-vessel walls from the effects of the toxins circulating in the blood. (Epit. of the British Medical Journal, April 24, 1894, p. 61.)

HYSTERICAL DEAFNESS.

At a recent meeting of the French Society of Otology and Laryngology, Cartaz (*La Médicine Moderne*, 1894, No. 37, p. 583) discussed the auditory manifestations of hysteria and took the ground that the rarity of their occurrence is apparent rather than real. Deafness, however, in association or not with other profound evidences of hysteria, such as mutism and ocular derangement he admitted to be exceedingly uncommon. Fifteen cases of hysterical deafness have been collected, and Cartaz reported two additional ones. One occurred in a girl of 16 who,

when she came under observation, had been deaf and mute for two days. She had menstruated for two years, the periods having been irregular at first; from time to time at the menstrual periods she appeared apathetic and with a disposition to weep without obvious cause. Two days before coming under observation, in the course of a heated discussion with a companion, she received a slap in the face. She appeared for a moment stunned, but at once broke into tears. Her mother spoke to her, but received no response. The girl made movements with her lips, as if she wished to speak, but did not succeed in enunciating any words. She seemed not to understand what was said to her. The treatment consisted in the application of the constant current, sometimes only by suggestion, sometimes actually, and recovery soon ensued. The second case presented an even more rare association than the first. In this there was both blindness and deafness of hysterical origin, which readily disappeared under the influence of magnetism. (The American Journal of the Medical Sciences, September, 1894, p. 341.)

HYSTERICAL MUSCULAR ATROPHY.

Hirt (*Deut. med. Woch.*, May 24, 1894) observes that hysteria may give rise to muscular wasting usually one-sided but occasionally limited to the area supplied by a single nerve. Sensation varies in these cases; sometimes the author has found it normal, more often altered, especially in regard to touch and temperature. Only twice was there hemi-anæsthesia. The author speaks of a general wasting in hysteria affecting all the voluntary muscles. All other causes of wasting must of course be excluded. In three such cases, all fatal, the patients were women. In the last one reported in detail, the disease lasted only two months, and produced almost a complete disappearance of the muscles. In an epidemic of hysterical spasm among girls in a school the patient in question, aged 15, had suffered severely but recovered apparently completely in a few months. Some three months later she began to suffer from bodily weakness, dulness, and desire to sleep. She was excited at times, did not wish to leave her bed, and refused food. There was no evidence whatever of organic disease, and she was at one time thought to be simulating. The wasting, however, was striking, and when seen by the author she presented the appearance of the most marked muscular wasting. There were no signs of tuberculosis, diabetes, &c. The R.D. was absent and the opening and closing contractions were very prompt. There was no fibrillary contractions. Death occurred shortly afterwards. Epitome of the British Medical Journal, October 23, 1894, p. 97.)

INFANTILE CONVULSIONS.—Treatment.

J. Simon (*Gaz. des Hôp.*, Feb., *La. Méd. Inf.*, May, 1894), divides the treatment of infantile convulsions into four stages :—(1) In the first place the digestive canal should be emptied, as in four-fifths of the cases the convulsions are due to indigestion, or obstinate constipation ; a warm enema should be given with oil, glycerine, or salt. (2) To calm the nervous system, ether or a few drops of chloroform should be given by inhalation ; after the enema has acted a clyster containing chloral and musk should be given (8 grains of chloral to an infant of three to six months, 11 grains to an infant of nine months, and 15 grains to one of a year, with 20 drops of tincture of musk) in three or four parts, to ensure its retention and absorption. In addition, a mixture containing small doses of bromide of potassium, and tincture of musk should be given every hour or every half hour. (3) In obstinate cases, cutaneous revulsives should be used, such as mustard baths (fron one to three) or a blister to the back of the neck, left on for three hours. (4) In seeking the cause of the convulsions, if indigestion, constipation, and enteritis be absent, search should be made for burns and other sources of cutaneous irritation, foreign body in the nose or ear, hernia, undescended testicle, or retention of urine, but especially for evidence of uræmia. If there be reason to suspect that condition the treatment prescribed should be counter-irritation over the kidneys, hot-air baths, leeches to the mastoid process or venesection. When the attack has passed off the infant should not be considered out of danger until it has passed water freely. (Epitome of the British Medical Journal, June 2, 1894, p. 88.)

LEAD PALSY IN CHILDREN.

The symptoms of lead-poisoning in children which have been most frequently noted are disturbances of digestion, such as colic and vomiting ; and the cerebral symptoms, indicated by headache, convulsions and stupor. Chronic lead-poisoning is most likely to be manifested by a general loss of flesh, failure of appetite, and the earthen hue of the skin, with a jaundiced condition of the conjunctiva. In chronic lead-poisoning disorders of digestion are most common ; constipation, attacks of colic and vomiting frequently occur, and there is other evidence of derangement of the stomach in the defective assimilation that exists. In other cases symptoms of kidney-disease are present ; and it is well known that there is a form of nephritis due to accumulation of lead in the kidneys. The symptoms dependent upon disease of the nervous system due to lead-poisoning are motor and sensory. The most common of these, of course, is paralysis of the extensor muscles of the forearms. In children,

however, it is a noteworthy fact that the paralysis is as liable to affect the lower extremities as the upper. There are but few cases reported in which sensory disturbances have been met with in children. Cerebral symptoms are not uncommon in children. The lead encephalopathies in children have been frequently met with, especially, as already remarked, among the cases reported by Stewart, and Putnam refers to other cases. The resemblance of lead-palsy in children to poliomyelitis has been noted by several writers; and it seems possible that some of the cases that have been recorded as instances of poliomyelitis may have been due to chronic lead poisoning. The pathology of lead-poisoning in children is generally considered as consisting in changes in the peripheral nerves; and these alterations are very closely allied to those met with in the ordinary forms of multiple neuritis. There is good reason to believe, however, that in many cases of typical lead-paralysis the symptoms are due primarily to the direct action of the lead upon the muscles. It is also probable, and this is also suggested by Putnam, that chronic lead-poisoning may produce typical changes in the anterior horns of the spinal cord, and thus give rise to a poliomyelitis, identical in its symptoms with the acute, or, so to speak, idiopathic form of the disease. (Dr. Wharton Sinkler, Medical News, July 28, 1894, p. 85.)

OPTIC NEURITIS IN ITS RELATION TO CEREBRAL TUMOUR AND TREPHINING.

At the Ophthalmological Society of the United Kingdom, on June 19, 1894, Dr. James Taylor read a paper on "Optic Neuritis in its Relation to Cerebral Tumour and Trephining." He alluded to the fact to which Mr. Horsley had some time ago called attention — namely, the subsidence of optic neuritis after operation undertaken with a view to the removal of cerebral tumour, even when the tumour was not removed. Similar observations had been recorded by Bruns and Erb, and in this paper it was intended to emphasise the fact that not only in cases in which a tumour was removed from the brain did the optic neuritis subside and the discs resume a normal appearance but even in other cases of tumour in which the skull was opened, but the tumour not removed or interfered with further, a similar subsidence of the swelling of the discs took place. Three cases of optic neuritis associated with intracranial tumour were first related, in which the tumour was removed and the optic neuritis subsided. Another group of three cases was next detailed. In all of these there were the usual symptoms of intracranial tumour. All were trephined, and in two of them the tumour was visible at the operation, but was not removed or even

incised. Yet the neuritis in one entirely disappeared, although the patient subsequently died, and tumour was present; in the second the swelling had diminished by 1 millimetre, although the tumour, as was apparent from the symptoms, continued to grow, and the patient died soon after passing from observation. In the third case of this group the symptoms pointed to cerebellar growth, probably tuberculous, but no tumour could be found at the operation. But the swelling of the discs which was present disappeared, although slight impairment of vision remained in one eye. A third group of cases was next described, consisting also of three. The first was that of a patient from whom a cerebral tumour was removed, and the neuritis, which was present in only one eye, disappeared. He subsequently died, and a cyst was found occupying the site of the tumour which had been removed. There was no recurrence of the neuritis when he was last seen, three weeks before his death. The second case was that of a boy, who was trephined on account of right-sided fits and weakness. Optic neuritis was present. A cyst was tapped, and a drainage-tube kept in intermittently during two years. Finally, large masses of tumour were removed, but the boy died later, and sarcomatous masses were found post-mortem in the brain. The neuritis subsided after the first trephining and drainage, and never recurred during the subsequent two years, although there was little doubt that the original cyst tapped was a cyst in the tumour. The last case was that of a man at present in hospital from whose brain a sarcoma was removed. The optic neuritis which was present disappeared, and had never recurred, although at a subsequent operation, undertaken on account of symptoms of recurrence of the tumour, it was found impossible to remove it all. It was urged, in conclusion, that, even taking account of the facts that a large cerebral tumour might be present without producing optic neuritis, and that optic neuritis might be present without cerebral tumour, as was long ago pointed out by Dr. Hughlings Jackson and Dr. Gowers, such facts and observations as were related in this paper made it evident that in certain cases, at least, of intracranial tumour the pressure inside the skull was the effective agent in producing what was known as optic neuritis.

Dr. Hughlings Jackson considered Dr. James Taylor's paper to be an exceedingly valuable contribution both to ophthalmology and neurology. Mr. Horsley had certainly shown that raised intracranial pressure was a most important factor in the production of optic neuritis in some cases of intracranial tumours. Dr. Jackson had, however, found double optic neuritis both in cases of small and of large intracranial tumours. Optic neuritis might be absent in cases of large cerebral tumours

which had existed for several years. Again, double optic neuritis was sometimes found in cases of brain disease in which there was no tumour or any other kind of adventitious product within the cranium, and no renal disease. Cases of uniocular optic neuritis had to be considered ; he had seen but three cases with necropsies, and in them the tumour was of the opposite cerebral hemisphere ; these cases were difficult of interpretation on any hypothesis. He then referred to rapid death in some cases of patients who had double optic neuritis from intracranial tumour. In some of them death occurred by failure of respiration (a mode of dying in these cases first pointed out by the late Hilton Fagge). When the tumour was of the cerebellum the failure of the respiratory (medulla) centre might easily be attributed to transmitted pressure. Dr. Jackson mentioned the case of a patient, the subject of optic neuritis, who died by respiratory failure where the tumour was of one occipital lobe ; the patient was taken fatally ill when at work at the docks. Dr. Jackson referred to an important paper by Mr. Horsley and Mr. Walter Spencer dealing experimentally with the general question of raised intracranial pressure. Dr. Buzzard had put forward the hypothesis that rapid death in some cases of intracranial tumour with optic neuritis might be due to changes in the vagus nerves, changes analogous to those of optic neuritis. Possibly Dr. Jackson thought, in cases of death by failure of respiration, there was induction of such changes in the respiratory centre.

Mr. Victor Horsley thought that the removal of pressure was certainly one factor in the reduction of optic neuritis in cerebral tumour, but only one of several ; it was enough to remove the bony covering in many cases to reduce the pressure and remove the optic neuritis, but pressure was not enough to explain all cases of optic neuritis, such as occurred, for instance, in anæmia. From his experience, the operation was only good in removing neuritis ; it was useless in removing any atrophy which might have supervened. When a tumour recurred after removal there was no recurrence of optic neuritis ; this put out of court the inflammatory explanation of the neuritis.

Mr. Ballance did not agree that pressure was the essential factor in producing optic neuritis ; around every foreign body or tumour there was an area of inflammation larger or smaller according to the disturbance exerted by it on the tissues around, and he thought that the inflammatory theory of optic neuritis, as supported by the observations of Messrs. Edmunds and Lawford, should not be rejected without a microscopic examination of the meninges for basal meningitis.

Dr. Beevor had lately seen one of the cases in which the tumour was removed ; there was no recurrence of the optic neuritis, and the headache was less.

Dr. Hill Griffith thought that the complete recovery after sudden attacks of blindness with optic neuritis could only be explained on the pressure theory, as the vision was absolutely unimpaired after recovery. (British Medical Journal, June 23, 1894, p. 1360.)

PARALYSIS AGITANS.—Pathology of.

The belief seems to be gaining ground that paralysis agitans is but a manifestation of premature senility, the result of changes affecting the nervous system as a part of a widely-distributed degeneration, and the pathologic evidence tends to support this view. An interesting contribution to this subject has recently been made by Ketscher (*Zeitschr. f. Heilk*, Bd. xii., S. 445; *Centralbl. f. allg. Pathologie u. pathol. Anatomie*, Bd. v., No. 4, S. 173), based upon observations made in the laboratory of Chiari at Prague. The tissues from three cases were carefully studied, the material being from subjects between sixty-eight and seventy-six years old. The changes found, and which corresponded with those found by previous investigators, consisted in a varying degree of degeneration and atrophy of the specific nervous elements, the ganglion-cells and the nerve-fibres, as well as of the muscles. There was also hyperplastic increase of interstitial tissue, in brain as well as in nerve and in muscle, and this was particularly marked in the neuroglia of the posterior columns adjacent to the posterior median fissure. In this situation, in the ependyma of the lateral ventricles, and at the periphery of the cord generally, there were noteworthy accumulations of corpora amylacea. There were also present thickening of the walls of the vessels, with dilatation of the perivascular and pericellular lymph-spaces and obliteration of the central canal of the spinal cord by the surrounding increase of neuroglia, together with hyperplasia of the epithelium of the lining membrane, giving rise in places to dilatation of the canal. For comparative purposes studies were made of the spinal cord, peripheral nerves, and muscles, obtained from ten persons that had died of other conditions, between the ages of fifty-seven and seventy-six years. In all of these changes were found that differed only in degree from those found in the cases of paralysis agitans. The legitimate conclusions from these observations is that paralysis agitans is but the expression in the nervous system of a premature senile degeneration. Etiologically it may be conceived that as a result of diminished functional activity there occurs defective elimination of matters that, retained, give rise to irritation and bring about degeneration in the nervous system, as well as in the vascular system and in the viscera, and the progression of which leads finally to the extinction of life. (Medical News, April 7, 1894, p. 388.)

SPINAL CARIES.—Treatment by Laminectomy.

Mr. Parkin appends the following conclusions to a paper on this subject: (1) That extension and counter-extension of the spine, however carefully applied, has little or no effect on cases of paraplegia. (2) That, as a rule, laminectomy has an immediate effect on the paralysis when due to caries of the spine, and that most cases so treated recover entirely from their paralytic symptoms. (3) If the tuberculous focus can be eradicated from the vertebræ there is every prospect of the result being permanent, otherwise relapses may take place, or further tuberculous troubles may arise, as in tuberculous disease elsewhere. (4) It is possible by means of laminectomy to considerably improve cases of severe deformity from spinal disease. (5) That advanced cases of spinal caries, in which it is probable that a caseous mass exists may be greatly benefited by laminectomy and the direct treatment of the diseased focus. (6) That the operation itself is not a difficult one, unless there is grave respiratory trouble. It does not interfere with the future stability or mobility of the spinal column; the disease for which such operation is performed may, however, do so. (British Medical Journal, September 29, 1894, p. 701.)

TABES DORSALIS.—Palatal Ulceration in.

Dr. Letulle records the case of an ataxic (and syphilitic) patient, who had formerly suffered from perforating ulcer of the foot, and who recently developed perforation of the palate, accompanied with loss of the teeth and total anæsthesia of the whole mouth. The perforation communicated with the maxillary sinus, but it had never given issue to pus. Dr. Lermoyez has also met with two tabic patients who presented perforations of the palate that had been produced spontaneously and with suppuration.—*Medical Week*, vol. ii. p. 355, No. 20, 1894. (The Practitioner, October, 1894, p. 291.)

TABES.—Ulcers of the Mouth in.

Louis Wickham describes a characteristic form of buccal ulceration which supervenes in some cases of tabes. The ulcers are so clean in appearance that they ought at once to suggest the nature of the primary disease. They are seated, wholly or in part, on the alveolar processes. They encroach upon these at some points, though they may extend to neighbouring mucous surfaces. They are indolent and anæsthetic. The probe will often reveal an orifice which leads down to a bare surface of bone. Evolution may be slow or rapid. The teeth are absent in part or altogether; they have fallen out painlessly. There may be deformities of the jaws. The history of the case will give important information; it will show how the deformities,

&c., originated. There has probably been an abscess, necrosis of bone, and elimination of sequestra. The teeth fell out before ulceration began, and all the lesions evolved in a "noiseless" fashion. These circumstances enable one to put aside tuberculosis, syphilis, phosphorus necrosis, and severe mercurial stomatitis, The actual nature of such lesions is still uncertain. They may be due to trophic disturbances directly dependent upon tabes, or they may be due to dento-alveolar periostitis, which, in a tabetic subject, takes on an aggravated form.—*La France Médicale*, January 26, 1894. (Glasgow Medical Journal, April, 1894, p. 313.)

AFFECTIONS OF THE CIRCULATORY SYSTEM.

CHOREA.—Heart Changes in.

Anomalies in the cardiac action may depend upon faulty innervation, upon changes in the muscular walls or in the condition of the circulating blood, and upon inflammation of the valve segments. Palpitation and disturbance of rhythm, rapid action, and pain are the chief nervous manifestations. Palpitation and irregularity are not very common, and are not so frequent as the simple action under emotional disturbance. Occasionally the heart sounds have a fœtal rhythm. Cases with very exaggerated movements may present for days an excessively rapid heart action. On the other hand, with the mental enfeeblement which sometimes follows chorea, the pulse may be abnormally slow, beating in a child of 10 or 12 at the rate of 70 or 80 a minute. I have never seen a case in which the disordered movement was of such a kind that it might be attributed to a special choreic action of the heart muscle (*chorée du cœur*). The subjects of chorea rarely complain of pain about the heart, and even with very rapid action and palpitation there may be no subjective sensations. Pain, as a marked symptom, is met with in recurring attacks associated with endo-pericarditis and rheumatism, more rarely in the first attack with endocarditis. Evidence of involvement of the myocardium, of the valves, and of disturbed function due to impoverished blood is afforded by the presence at one or other of the so-called cardiac regions of the abnormal sound known as a murmur, the nature of which in chorea has been so much discussed. It may be well to speak first of the incidence of heart murmurs during the attack. Of the 554 cases at the Infirmary for Diseases of the Nervous System, 170 (30·7 per cent.) presented heart murmurs, in 149 apical in maximum intensity, in 21 basic. In 141 cases of chorea minor examined at the Dispensary for Nervous Diseases of the Johns Hopkins Hospital there were

42 with a cardiac murmur. Of the 449 cases in the "Report of the Committee on Collective Investigation of the British Medical Association," 113 had heart murmurs. Much has been written in explanation of the occurrence of heart murmurs in this disease, and an excellent summary is to be found in Hayden's work. The murmurs may be either functional or organic. In a large proportion of all cases of chorea in which a murmur is heard at the base, or along the left margin of the sternum in the second, third, and fourth interspaces, the disturbance is probably functional. (Dr. Osler, Medical Chronicle, August, 1894, p. 321.)

[Dr. Osler's remarks upon Organic Bruits in Chorea will be found at p. 186.]

Chorea.—Pericarditis in.

Inflammation of the pericardium in connection with chorea was first described by Bright, who states also that this had been long observed by Guy's Hospital physicians. His statement of the matter is worth quoting :—With regard to the connection between chorea and inflammation of the pericardium, when called upon the year before last to deliver the Lumleian Lectures at the College of Physicians, I took occasion to state that for some years I had been persuaded of the existence of such a combination, and little attention has hitherto, so far as I know, been paid to the subject, although the combination of this spasmodic disease with rheumatism has been long recognised. In the very excellent "Syllabus ; or Outlines of Lectures on the Practice of Medicine," published at Guy's Hospital, I find in the edition of 1802, rheumatism distinctly stated as one of the existing causes of chorea ; and in later editions, as in that of 1820, I find it stated that "chorea sometimes alternates with acute rheumatism," but through what organ or by what intervention this occurs is not conjectured. He gives in this paper five cases of pericarditis with chorea and rheumatism ; in the first case there was also endocarditis. The Lumleian Lectures for 1836, to which he refers, are not in *The Lancet* of that year, nor can I find that they were published. Bright thought the connection between the two was through the phrenic nerve, which communicated the irritation from the inflamed pericardium to the spinal cord. By far the best account in the literature is that by Sibson, in his exhaustive article on "Pericarditis." He states that 21 of the 180 cases of acute rheumatism with affections of the nervous system had chorea. Fifteen of those patients with chorea had pericarditis, 6 had no pericarditis ; while 14 of them had endocarditis ; 3 had no endocarditis, and in 3 of them endocarditis was probable or doubtful. Of the 72 recent autopsies in chorea which I have

collected, pericarditis occurred in 19 cases, in 17 of which it was associated with endocarditis. In 8 of the cases there was a history of acute rheumatism (arthritis). (Medical Chronicle, August, 1894, p. 330.)

EMBOLISM OF THE ABDOMINAL AORTA.

Matignon, in an article in *La Médecine Moderne* (26 Mai, 1894) reviews our present knowledge of this rare condition. He finds in the literature twenty-five cases, upon which his conclusions are based. Of these, twelve occurred in men. No case occurred before the twentieth year. In the majority of the cases the embolism occurred in connection with an infectious disease, usually associated with an endocardial lesion. Thus, in six cases it followed acute articular rheumatism; in five cases puerperal pyæmia; in four erysipelas; once each, typhoid fever, pneumonia, syphilis. In four cases there were endocardial lesions of indeterminate character. Usually emboli are found in various parts of the body in cases of fatal embolism of the aorta. The usual seat of the embolus is the bifurcation of the vessel, and it may occlude one or both of the common iliacs completely or partially. The symptoms vary somewhat in different cases, depending chiefly upon the degree of occlusion of the vessel. Their onset is sudden, and the most constant are violent pains in the lower extremities, paraplegia, cessation of pulsation in the arteries of the lower limbs, lower temperature of the legs, and rapid trophic change resulting in gangrene. The prognosis is very grave, twenty-three of the twenty-five cases described having died, usually within four days after the onset of symptoms. For such a condition treatment could hardly be expected to be of much avail. (The American Journal of the Medical Sciences, September, 1894, p. 372.)

PAROXYSMAL TACHYCARDIA.

Lange (*Pittsburg Medical Review*, vol. viii., No. 2., p. 39) gives a good delineation of the symptom-complex included in the designation paroxysmal tachycardia, and relates two cases. He observes that examination of the patient during the attack will show that the pulse cannot be correctly counted at the radial, the carotid, or the temporal. On auscultation it is difficult, often impossible, to differentiate the first from the second sound. The first sound may be divided, the contractions of the ventricles being asynchronous. Finally, every wave of blood does not reach the radial artery. A fœtal character is imparted to the heart-sounds, which are, as a rule, distinct and clear, although at times a slight blowing systolic murmur may be heard. On palpation the impact of the heart is wanting, and is replaced by a series of diffused vibrations. Percussion

demonstrates some increase in the area of cardial dulness to the left, but much more downward over the right ventricle. This increase is but transient, and disappears with the cessation of the attack. The urine passed during the attack may be of increased specific gravity, containing an excess of urates, but no albumin. The face is pale, and the lips may be cyanotic. No undue fulness of the veins of the neck and chest can be detected, and there is no cough. When an attack has continued for many weeks the liver can be shown to be enlarged, and fine mucous râles may be heard low down behind. Therapeutically, sedatives such as the bromides, hydrocyanic acid, Calabar bean, and conium, have been found effectual in bringing the attack to an end. Cold and heat have acted similarly. In one of the cases reported the attacks could be aborted or brought to a close by deep inspirations held for fifteen or twenty seconds. (The American Journal of the Medical Sciences, May, 1894, p. 579.)

TACHYCARDIA AND CARDIAC PAIN DUE TO INFLUENZA.

At the Royal Medical and Chirurgical Society, on June 12, 1894, Dr. Sansom contributed a Review of Cases manifesting Pain at the Heart, or Morbid Acceleration of the Heart's Contractions (Tachycardia) subsequently to Influenza. He had submitted to review and analysis the evidence in 100 cases under his own observation, in which pain referred to the heart, disturbances of the cardiac rhythm, or structural disease had been manifested after attacks of influenza. The cases were thus distributed:—Pain at the heart, 23 cases; morbid acceleration of the heart's action (tachycardia), 37 cases; irregularity (arhythmia), 25 cases; abnormal retardation of the heart-rate (bradycardia), 5 cases; organic disease, 10 cases. The present communication dealt with the first two sections of cases. The pain experienced in the region of the heart was in some cases paroxysmal; in others more or less protracted. The paroxysmal pain in some cases resembled that of angina pectoris. It might be intense and occur with extreme suddenness, so that some patients fell completely unconscious. It was observed that in some unconsciousness might occur paroxysmally in the absence of severe pain. There were not the associated signs of true angina pectoris. Hysteria was excluded, for several patients were men, and some typical athletes, who had been in perfect health until their attack of influenza. In the cases manifesting more constant pain, the beating of the heart was often accompanied by subjective discomfort; there were sometimes tender spots in the intercostal spaces close to the sternum, with more deeply-seated pain in defined situations, and in several instances symptoms of

concomitant neuritis involving some of the nerves proceeding from the brachial plexus. In regard to pathology Dr. Sansom considered that the symptoms might be due to a neuritis affecting some of the ganglia of the cardiac plexuses, or to a disturbance of the sensorium analogous to that in epileptiform neuralgia or in visceral neuralgia. In treatment quinine in 5-grain doses with antispasmodics, morphia sparingly and cautiously administered subcutaneously, and a course of the bromides and iodides with arsenic were considered the best agents. The evidence showed that good results might follow the use of a weak, continuous galvanic current from the nape of the neck to the region of the vagus. Morbid acceleration of the rate of the heart's action (tachycardia) was found to be the most frequent of all the cardiac disorders induced by influenza. It might occur immediately after the attack or be manifested after the lapse of several months. It might continue for long periods—at least eighteen months. In many cases the heart was very irritable, quickened action being provoked by very slight causes or occurring at intervals without assignable cause. The evidence showed that post-influenzal tachycardia might be accompanied by many of the symptoms, or even by all the cardinal signs, of Graves's disease—a circumstance which was of interest in the question of the pathology of the latter affection. After reviewing the evidence concerning the pathology of post-influenzal tachycardia, Dr. Sansom considered it to be most probable that the initial cause was a disturbance of the vagus at its origin or in some parts of its course, whereby its controlling power over the cardiac contractions became impaired. It was possible that irritative lesions of the accelerator nerves of the heart, in the cord, in the course of the sympathetic filaments or in the ganglia, might be concurring causes, and in some cases hypersecretion by the thyroid might be a subsidiary cause. In the treatment of post-influenzal tachycardia drugs seemed to be inefficacious except as modifying the associated symptoms. There was evidence, however, to show that the systematic use of weak continuous galvanic currents from the nape of the neck to the region of the vagus might be followed by good results. (The Lancet, June 16, 1894, p. 1503.)

AFFECTIONS OF THE RESPIRATORY SYSTEM.

GOITRE.—Extirpation of.

Wolff, in an article upon this subject (*Deutsche med. Wochenschrift*, 1893, No. 11), calls attention especially to three points:—(1) The causes of death during or immediately after operations for the relief of goitre; (2) the later behaviour of the portion of goitre

which remains in cases of unilateral extirpation ; (3) the use of methodical wound-compression in intracapsular extirpation of goitre. With reference to the first of these, Wolff thinks the quantities of mucus that are raised from the stomach by the retching induced by the anæsthetic are frequently the cause of the sudden death. He mentions several cases, collected from literature, which he explains in this way. The treatment advised is to allow the head to hang down, and to wash out the throat with water. The reason the same accident does not occur during operations for other conditions is explained, the author believes, by the fact that in goitre the air-passage is narrowed until it resembles the sheath of a sword, while with normal air-passages no trouble would be experienced. After a considerable experience with removal of one-half of a goitre, Wolff has not observed any hypertrophy of the remaining portion, but, on the other hand, there is usually more or less diminution in its size. Nevertheless, it is possible that, after a transient reduction of the remaining portion of the goitre, a recurrence may take place. Four such cases are mentioned. The relation between the narrowing of the air-passages is thought to be as follows :—The goitre first produces the narrowing, and then this causes further enlargement of the goitre. The lumen of the air-passage is diminished by the capsule of the gland growing intimately to it, and strangling it like a broad band. The growth of the gland, which depends upon the narrowing of the air-passage, can be arrested only by carefully removing the constricting band—that is, by separation of the capsule of the gland from the trachea. The more fully the air-passage is freed by thoroughly relieving the constricting band, the more securely the patient is assured freedom from increase in the size of the remaining portion and from recurrence. Wolff concludes that the intracapsular enucleation is to be preferred, because the method is much safer than any other, because additional lesions, with their serious consequences, are much less apt to occur, and the difficulties in the technique are much reduced. (The American Journal of the Medical Sciences, September, 1894, p. 351.)

OZENA.—Treatment.

The plan of treatment from which I have been able to obtain the best results is :—(1) Thorough spraying of the membrane with some solvent of albuminous material ; (2) washing away of this material by means of an alkaline antiseptic solution ; (3) thorough drying of the membrane ; (4) the application of the remedial agent, best in a solution, which will adhere to the membrane. After cleansing and drying the membrane the next step is to apply a stimulating, irritating substance which

will establish an acute inflammation of the parts. This is simply applying to the mucous membrane the general surgical methods of treating chronic superficial inflammations by converting them into acute inflammations. In this way one will produce hyperæmia of the parts, deplete the circulation by increased activity of the blood-current, and lessen the engorgement. This end is also furthered by transudation, which, being on a mucous surface, has free drainage. When a copious watery discharge has existed for at least ten days then the cleansing and drying should be followed by a stimulating antiseptic solution. In cases in which the atrophic changes have been followed by degeneration the benefit derived from treatment is very slight, except so far as relates to the lessening of the odour. As a solvent for the albuminous material, hydrogen dioxide (15 vol.) is possibly the best. To wash away this material an alkaline solution of sodium biborate and bicarbonate with cinnamon water and camphor water, or any of the alkaline washes, is good. After carefully drying the membrane, the parts can be stimulated and irritated by applying oil of mustard in benzoinol or liquid albolin by means of an atomizer. As an irritant it should be used in some cases as strong as six or eight drops to the ounce. If the condition is not too far advanced this plan of treatment has, in my hands, been most successful, the formation of slugs being entirely relieved, as well as the dryness and itching of the nares, the fulness of the post-nasal space, the secretion becoming almost normal. The patient's general health must, of course, be improved by tonics, regular out-of-door exercise, and rest. (Dr. Braden Kyle, Philadelphia Medical News, May 5, 1894, p. 485.)

PERSISTENT THYREOGLOSSAL DUCT.

At the Royal Medical and Chirurgical Society on April 10, 1894, Mr. H. E. Durham contributed a paper on Persistence of the Thyreoglossal Duct, with remarks on Median Cervical Cysts and Fistulæ of Congenital Origin. Three cases of persistent ductus thyreoglossalis were described ; especial attention was given to the histological characters of the specimens removed in these cases. The chief features of these cases were shortly as follow : *Case 1.*—Removed from a youth nineteen years of age. The specimen showed two lumina lined mostly with ciliated epithelium ; at the upper part (level of lower border of hyoid bone) patches of squamous epithelium occurred ; also a small tract of thyroid gland follicles. With the median position these facts indicated the thyreoglossal duct origin. *Case 2.*—Removed from a child six years of age. The specimen also showed paired lumina, the epithelium being cylindrical below and squamous above. The median position was likewise evidence of derivation from the

thyreoglossal duct. *Case 3.*—Goitre of the isthmus glandulæ thyreoideæ, associated with persistent thyreoglossal duct in a girl aged eighteen years. The diagnosis of ductus thyreoglossalis rested upon the presence of ciliated cavities in the tumour and the section of a process running upon the thyroid cartilage at the operation. A classification of congenital cysts and fistulæ of the mid-line of the neck and of the base of the tongue was given and discussed. The following arrangement was made: 1. Dermoid cysts and fistulæ: (*a*) due to persistence of ductus lingualis; (*b*) due to persistence of sinus præcervicalis; and (*c*) of independent origin. 2. Mixed dermoid and mucoid cysts and fistulæ: (*a*) due to persistence of ductus thyreoglossalis; and (*b*) due to persistence of sinus præcervicalis and both epiblastic and hypoblastic gill pouches. 3. Mucoid cysts and fistulæ: (*a*) derived from the mucous glands of the ductus lingualis; and (*b*) due to the persistence of the ductus thyreoideus. It was suggested that many of the cases which had been recorded as branchial fistulæ were rather to be regarded as persistent thyreoglossal ducts. Cases were cited to support this opinion. Next, certain modes of origin of median cervical cysts and fistulæ which had been suggested in the past were dealt with. These were (*a*) præepiglottic mucous glands; (*b*) tracheal and laryngeal herniæ; and (*c*) bursæ about the hyoid bone. It was pointed out that the records of such cases were unsatisfactory and were to be considered doubtful. Some remarks upon the method of treatment were also made. The Lancet, April 14, 1894, p. 934.)

PHTHISIS.—Diet in.

Some of the most important rules which should govern the dietetic treatment of phthisis may be formulated as follows:—(1) Never take cough mixtures if they can possibly be avoided. (2) Food should be taken at least six times in the twenty-four hours; light repasts between the meals and on retiring. (3) Never eat when suffering from bodily or mental fatigue or nervous excitement. (4) Take a nap, or at least, lie down for twenty minutes, before the mid-day and evening meals. (5) Take only a small amount of fluid with the meals. (6) The starches and sugars should be avoided, as also all indigestible articles of diet. (7) As far as possible, each meal should consist of articles requiring about the same time to digest. (8) Only eat as much as can be easily and fully digested in the time allowed. (9) As long as possible, systematic exercise should be taken to favour assimilation and excretion; when this is impossible, massage or passive exercise should be undergone. (10) The food must be nicely prepared and daintily served; made inviting in every way. The following may serve as a sample of a diet sheet in

the early stages of phthisis :—*On Awakening.*—Eight ounces of equal parts of hot milk and seltzer-water, taken slowly through half an hour. *Breakfast.*—Oatmeal or cracked wheat, with a little sugar and an abundance of cream, rare steak, or loin chops with fat; soft-boiled or poached egg, cream toast, half-pint of milk, small cup of coffee. *Early Lunch*, 10 a.m.—Half pint of milk or small tea cup of squeezed beef-juice with stale bread. 12 noon : Rest or sleep. *Mid-day Meal*, 12.30.—Fish, broiled or stewed chicken, scraped meat-ball, stale bread, and plenty of butter, baked apples and cream, two glasses of milk. *Afternoon Lunch*, 4 p.m.—Bottle kumyss, raw scraped-beef sandwich, or goblet of milk. 5.30 p.m. : Rest or sleep. *Dinner*, 6 p.m.—Substantial meat or fish soup, rare toast beef or mutton, game, slice stale bread, spinach, cauliflower, fresh vegetables in season (sparingly). (Dr. H. P. Loomis, The Practitioner, May, 1894, p. 329.)

[See also article by Dr. H. P. Loomis, "On the Dietetic Treatment of Phthisis," at p. 207 of this volume of the *Retrospect.*]

SNUFF FOR THE CURE OF CHRONIC POST-NASAL CATARRH.

One grain of cocaine, 2 grains of menthol, and 100 grains of boric acid. Mix and grind as fine as possible. In cases of chronic inflammatory action as the result of cold or influenza the above acts exceedingly well. In such cases both nostrils are blocked, there is a feeling of heat and discomfort, and especially in a warm room, the cheeks at the same time becoming red and flushed. Sleep is difficult. Steaming, if anything, makes the symptoms worse. No doubt change of air and freedom from business could do much, but such remedies are not always possible. (Dr. F. P. Anderson, Medical Press, April 4, 1894, p. 356.)

SUPPURATION OF THE MAXILLARY SINUS.

In an article by Dr. Marcel Lermoyez on the treatment of sinusites at Vienna (*Annales des Mal. de l' Oreille, du Larynx, &c.*, 1894, No. 1), the attempt at evacuation by the natural passage is criticised as irrational because the opening is deeply concealed behind the inferior lip of the hiatus semilunaris, and because even though the beak of a syringe be successfully engaged within the orifice it would be extremely difficult to push it on into the cavity of the sinus, inasmuch as the ostium forms a canal directed from above downward and from behind forward—a direction exactly opposite to that of an instrument which has been placed in the middle meatus. Furthermore, the sinus cannot be thoroughly washed out even when the canula has been inserted, because the passage is too narrow to admit of

the discharge of gummous pus; and it has so happened that observers have extracted large masses of congealed pus by way of a large alveolar opening, when lavage by the natural orifice had extruded nothing but the liquid injected returned slightly turbid. Puncture through the middle meatus is objected to as not only being at too high a level, but as exposing the orbit to the risk of penetration. Puncture through the lower meatus is objected to because the necessary ablutions are very painful and cannot be executed by the patient. The alveolar puncture is deemed preferable in all cases except where it is necessary to scrape the sinus, and then the sinus shall be entered from the canine fossa. (The American Journal of the Medical Sciences, May, 1894, p. 589.)

SYPHILITIC PLEURISY.

In the *Presse Médicale* of the 30th ult., M. Chantemesse publishes a clinical lecture on the above rare complication of constitutional syphilis. The subjects of the lecture were two men who presented the usual stigmata of syphilis in the eruptive stage. In both there were discovered the physical signs of pleurisy with effusion, and in one aspiration with a hypodermic syringe yielded a quantity of straw-coloured serum. Both had râles, due probably to an eruption of roseola on the bronchial mucous membrane. M. Chantemesse has succeeded in collecting 12 similar observations of syphilitic pleurisy. Most of them were cases of dry pleurisy, but in either case the prognosis is favourable, resolution and absorption being the rule under specific treatment. M. Chantemesse treated his patients with intravenous injections of corrosive sublimate; he nevertheless does not recommend this method, but would prefer intra-muscular injections of the red oxide of mercury dissolved in sterilised olive oil. He says that he has never noticed any stomatitis during a treatment of several months, consisting of daily doses of 4 or 8 milligrammes of the salts dissolved in 1 or 2 cubic centimetres of the oil. The specific character of the pleurisy is plain to M. Chantemesse from the following peculiarities: its bilaterality, the small amount of effusion, its concomitance with the secondary eruption, its complete disappearance without leaving any traces, and its prompt cure by mercury. The lecturer is inclined to believe that the so-called secondary fever of syphilis may in many instances be explained by the existence of this kind of pleurisy, which in the presence of indubitable signs of lues venerea is not suspected or sought for. In one half of the cases bronchitis is present as well, this complication being probably due to the outbreak of a syphilide on the bronchial mucous membrane. (The Lancet, July 7, 1894, p. 57.)

AFFECTIONS OF THE DIGESTIVE SYSTEM.

ANGINA LUDOVICI.

Huguet and Bovis (*Arch. Gén. de Méd.*, April, 1894) commence a study of this subject. Inflammations of the mouth play an important part in causation, dental affections being frequently present. Sometimes it appears after some general disease, or it may result from extension from adjacent parts. Albuminuria, alcoholism, diabetes have some influence in producing it. Females are much less liable than males. The bacteriology still remains obscure. The authors believe that the situation of the pus is often intramuscular. The pus varies in character; frequently it is sanious, fœtid, or gangrenous. The extent of the disease also varies. The integuments are involved sooner or later. The authors would divide these sub-lingual phlegmons into (1) anterior, which may be submucous or deep, the latter being again subdivided into (*a*) the septic or gangrenous, and (*b*) the simple plegmonous form; and (2) posterior, being situated in the glossothyro-epiglottic space. In the septico-gangrenous form there is fever, pain, and later swelling in the submaxillary region. By the third to the fifth day the characteristic symptoms have developed. The edge of the maxilla is not distinct, and the cervico-facial groove has disappeared or appears pushed down. The skin is movable over the swelling, or sometimes it is reddened and slightly œdematous. The swelling is hard and non-fluctuating. The mucous membrane of the floor of the mouth is pushed up by this hard swelling. The movements of the head are painful. The masseters are contracted to a variable degree. Deglutition is difficult. Salivation may be present. Dyspnœa often appears later. The pus tends to make its way to the surface, but death may occur before this from septic intoxication or asphyxia. In the septico-gangrenous form spontaneous recovery is almost impossible. In the simple phlegmonous form the pus is not gangrenous, and spontaneous recovery is possible. The authors know of only one example of the posterior variety of these phlegmons. (Epitome of the British Medical Journal, August 12, 1894, p. 74.)

APPARATUS FOR USE AFTER INGUINAL COLOTOMY.

At the Medical Society on April 30, 1894, Mr. Macready read a paper on an apparatus for use after inguinal colotomy. The several requirements in such an instrument were enumerated as follows: (1) that it be of moderate size; (2) that it should not be liable to displacement; (3) that it should prevent the exit of

solid fæces and prolapse of the bowel ; (4) that it should provide for the escape of discharges which sometimes flowed up from the diseased surface and came away from the lower opening at the false anus ; and (5) that it should allow the patient to empty the bowel when the motions were fluid without retiring, as no

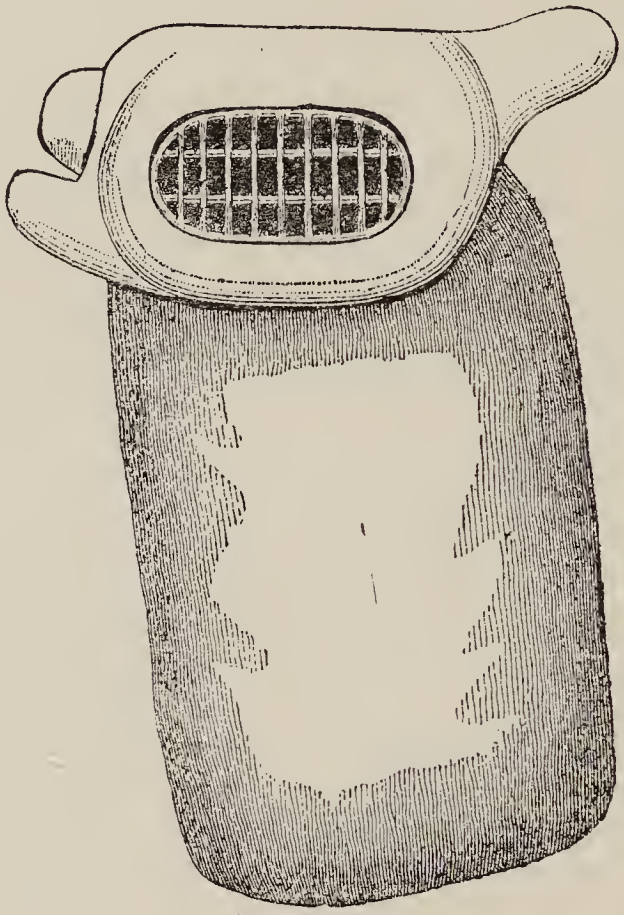


Fig. 1.—View of the instrument from the abdominal side.

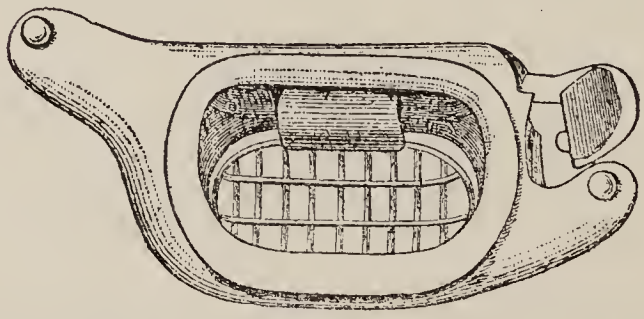


Fig. 2.—View of the instrument from the outer side without the reservoir.

truss would keep in fluid. The instrument, invented by a patient of Dr. Charles Savory, consisted of two principal parts —a plate of xylonite, resting against the false anus, and an india-rubber reservoir. The plate, which was of a rhomboidal figure, was held in position by attaching an elastic belt (or a

truss spring) at the lesser angles of the rhomboid. This device gave much stability to the instrument. The reservoir was fixed at the outer surface of the plate in such a manner that it could be instantly detached and easily readjusted. The false anus communicated with the reservoir by an oval opening in the plate. This opening was filled up by a grating of thick, gilded wire. Thus fluid discharges were able to escape into the reservoir, but solid fæces from the intestine could not. The patient could empty the bowel, when the motions were fluid, by means of an arrangement which allowed him to open the grating and thus make a free passage between the bowel and reservoir. The instrument was made by Mr. Gustav Ernst. (The Lancet, May 5, 1894, p. 1133.)

APPENDICITIS OBLITERANS.

Senn (Reprint from the *Journal of the American Medical Association*) directs the attention of the profession to a pathologically and anatomically well defined form of appendicitis that has hitherto not been separately described. The characters of this morbid condition, which is called "appendicitis obliterans," are described in the following conclusions :—(1) Appendicitis obliterans is a comparatively frequent form of relapsing inflammation of the appendix vermiformis ; (2) it is characterised by progressive obliteration of the lumen of the appendix, by the gradual disappearance of the epithelial lining and glandular tissue, and the production of granulation tissue from the submucous connective tissue which, by transformation into cicatricial tissue, starves out remnants of glandular tissue, and finally results in obliteration ; (3) the obliterating process manifests a progressive tendency, and may finally result in complete destruction of all glandular tissue and obliteration of the entire lumen ; (4) the incipient pathological changes occur either in the mucous membrane of the appendix, in the form of simple ulceration, or as an interstitial process following lymphatic infection ; (5) the most constant symptoms which attend this form of appendicitis are relapsing acute exacerbations of short duration, moderate swelling at the seat of disease, and persistence of tenderness in the region of the appendix during the intermissions ; (6) the process of obliteration may begin at the distal or proximal end, or at any place between, or it may commence simultaneously, or in succession at different points ; (7) obliteration at the proximal side gives rise to retention of septic material, which finds an outlet through the lymphatics, and gives rise to non-suppurative lymphangitis and lymphadenitis ; (8) circumscribed plastic peritonitis is an almost constant concomitant of appendicitis obliterans, and hastens the process of obliteration ; (9) complete obliteration of the

lumen of the appendix results in a spontaneous and permanent cure; and (10) in view of the prolonged suffering incident to a spontaneous cure by progressive obliteration, and the possible dangers attending it, a radical operation is indicated, and should be resorted to as soon as a positive diagnosis can be made. (Epitome of the British Medical Journal, October 6, 1894, p. 54.)

BICHROMATE OF POTASSIUM IN GASTRIC DISORDERS.

Professor T. R. Fraser has used bichromate of potassium in 18 cases of various forms of dyspepsia, unassociated with evidences of gastric ulcer, and in 10 cases in which distinctive evidences of ulcer had been present at some previous time. Commenting upon the results, Dr. Fraser says:—While the doses administered in the cases have varied from $\frac{1}{12}$ gr. to $\frac{1}{6}$ gr. (from 0·005 to 0·01 gramme) thrice daily, in the greatest number of the cases the smallest of these doses was administered, and was found sufficient. The dose should be given during fasting and in as empty a condition of the stomach as possible. The administration was effected in the form of pill or solution; and no difficulty was experienced by the patient in the taking of a simple solution in water, although occasionally, and especially with the larger doses, flavouring agents were added, such as syrup of tolu or of orange. An examination of these records shows that bichromate of potassium is capable of relieving, and often in a short time of removing, the entire group of symptoms—if we except constipation and anæmia—encountered in dyspepsia, and especially pain, nausea, vomiting and gastric tenderness. Taking into account the supposed relationship between disorders of the alimentary canal and anæmia, it might by some have been expected that an agent which is decidedly curative in dyspepsia would, at the same time, exert a curative inflence in anæmia. Several of my cases, however, have shown that this is not so, and have thus given evidence that the therapeutic benefit is the result of an action restricted to the stomach. In a few cases of acute gastric ulceration with hæmatemesis in which I have given bichromate of potassium the results were not favourable, as it did not succeed in checking the bleeding. Indeed, I find that its astringent action is very slight, for a solution of egg albumen, which was rendered hazy by a 0·01 per cent. solution of nitrate of silver, was not distinctly changed by a 3 per cent. solution of bichromate of potassium, and was rendered only slightly hazy by a 4 per cent. solution. At the same time bichromate of potassium possesses a strong anti-putrefactive power, which is exhibited in albuminous, saccharine, and phosphatic urines even with a 0·01 per cent. solution. This action probably

constitutes one of the causes of its anti-dyspeptic therapeutical value, but there are undoubtedly other causes, such as a direct or indirect analgesic action, and probably a selective action on the nutrition or function of certain histological structures, which I am now engaged in endeavouring to determine. (The Lancet, April 14, 1894, p. 925.)

CANCER OF RECTUM.—Excision of.

Mr. Platt gives the details of 21 cases in which excision of the rectum was performed for cancer, and summarises the results as follows:—We have 21 cases with 3 deaths, a mortality of 14·3 per cent. In two instances the operation was only partial, as the whole of the growth could not be removed. Seven patients have since died of recurrence ; in one the seat of recurrence is doubtful, in another the growth returned in the liver, but not in the bowel, and five had recurrence in the rectum. The duration of life after operation in these seven cases varied from six months to two years, and four of the patients had colotomy performed subsequently for the relief of the symptoms caused by the recurrent growth. Five of the patients who are still alive have return of the cancer ; in one of these the operation was only partial, a second has had no recurrence in the rectum for five years, but had an epithelioma on the sole of the foot three years after excision, a third had recurrence fifteen months after operation, a fourth had excision two years ago, and recurrence took place twelve months afterwards, and the fifth has had four operations, but has again recurrence. One patient had a secondary growth removed three months ago, but is at present free from the disease. Five patients are alive and have no return of the cancer, the time since operation being two years in one case, fourteen months in another, and from five to seven months in the rest. (Medical Chronicle, September, 1894, p. 426.)

[See also article "On Excision of the Rectum for Cancer," by Mr. J. E. Platt, at p. 325 of this volume of the *Retrospect.*]

CANCER OF STOMACH.—Treatment.

Dr. H. Huchard cites among the anti-cancerous remedies, aristol, sodium chlorate and condurango. Aristol acts internally as does iodoform. Sodium chlorate diminishes vomiting, and hæmatemesis, increases the appetite and combats the cachexia ; nevertheless it has no curative powers, and is contra-indicated in albuminuria. Condurango stimulates the appetite and the digestive power of the stomach when given as a wine or tincture or as a decoction. The diet must be regulated, hydrochloric acid administered up to the time of ulceration, then it must be replaced by pancreatin or pepsin. For the vomiting the choice

of remedy must be made according to the emergency ; morphine, cocaine, strychnine, lavage, gastric antiseptics, as sodium chlorate or salicylate, boric acid, naphthol, chloroform water, benzo-naphthol ; nutritive enemata, as that of Leube, Flint, Dujardin-Beaumetz. The surgical treatment is not radical, for those operated upon succumb sooner or later to degenerative lesions of the mucous membrane inseparable from cancer ; the patient dies; it is true that he dies cured.—*Journal des Praticiens*, 1894, No. 32, p. 379. (The American Journal of the Medical Sciences, August, 1894, p. 217.)

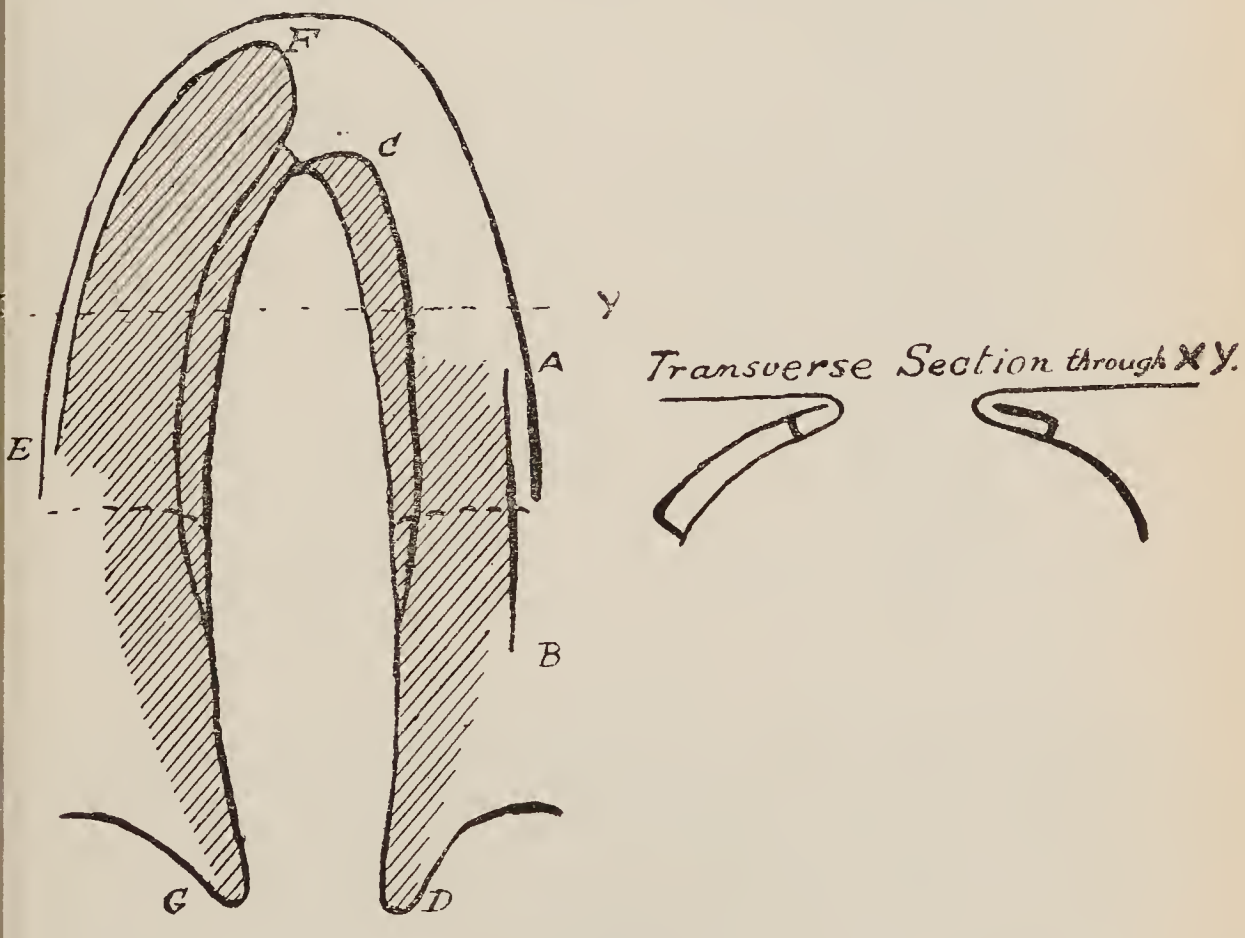
CANCER OF THE INTESTINE.—Diagnosis of.

In the diagnosis of cancer of the intestine the following points may be taken into consideration. In comparison with the subjects of malignant disease of the stomach very many of the patients are young. Intestinal features are present in a majority of cases, though they were by no means suggestive in the patients who have been under our observation. Griping, colicky pains are common, even without the signs of obstruction. With narrowing of the lumen of the gut very characteristic features occur—attacks of severe griping pain, abdominal distention, the presence of active, sometimes visible peristalsis in the distended coils of bowel, and, if the condition persists, vomiting and all the signs of intestinal obstruction. If fungus masses project and cause more or less narrowing, colicky pains and constipation are inevitable ; but, on the other hand, as the tumour grows, if there is necrosis of its surface, with excavation, neither pain nor constipation may be present. Diarrhœa and the passage of much slime with the fæces are not infrequent symptoms. Hemorrhage is also common. The blood is not often in large quantities; when the tumour is in the sigmoid flexure it may be bright and very little changed, but in growths about the cæcum it is often much altered before it appears in the stools. There are cases in which constant loss of small quantities of blood is a very special feature, and the patient becomes profoundly anæmic. Sloughy fragments of the tumour may sometimes be passed in the fæces. A cachexia develops progressively but with very variable rapidity. It may, however, be well marked before any features have arisen suggestive of intestinal trouble. The loss in weight may, too, be slight, even after the tumour has persisted for many months. The tumour in cancer of the intestines may be readily and easily discovered. On the other hand, it may not be until the terminal stage of the disease that the growth is found. A small tumour of the hepatic or splenic flexure of the colon may escape repeated examinations. Mobility is a special feature of growths in the large bowel. Large tumours, however, of the cæcum

may be quite fixed. The most movable growths are those connected with the sigmoid flexure. Variability in size is also a marked character, and at one examination the mass may appear as large as the closed fist or even two fists, and the next day it appears not larger than a small apple. These variations are due largely to the presence of fæcal masses in the vicinity. Two very important features in the intestinal tumour may sometimes be detected on careful palpation—namely, the hardening during contraction of the hypertrophied wall in the vicinity of the growth, and the bubbling of gas through the tumour, which may be heard as well as felt. (New York Medical Journal, May 5, 1894, p. 548.)

CLEFT OF HARD AND SOFT PALATE.

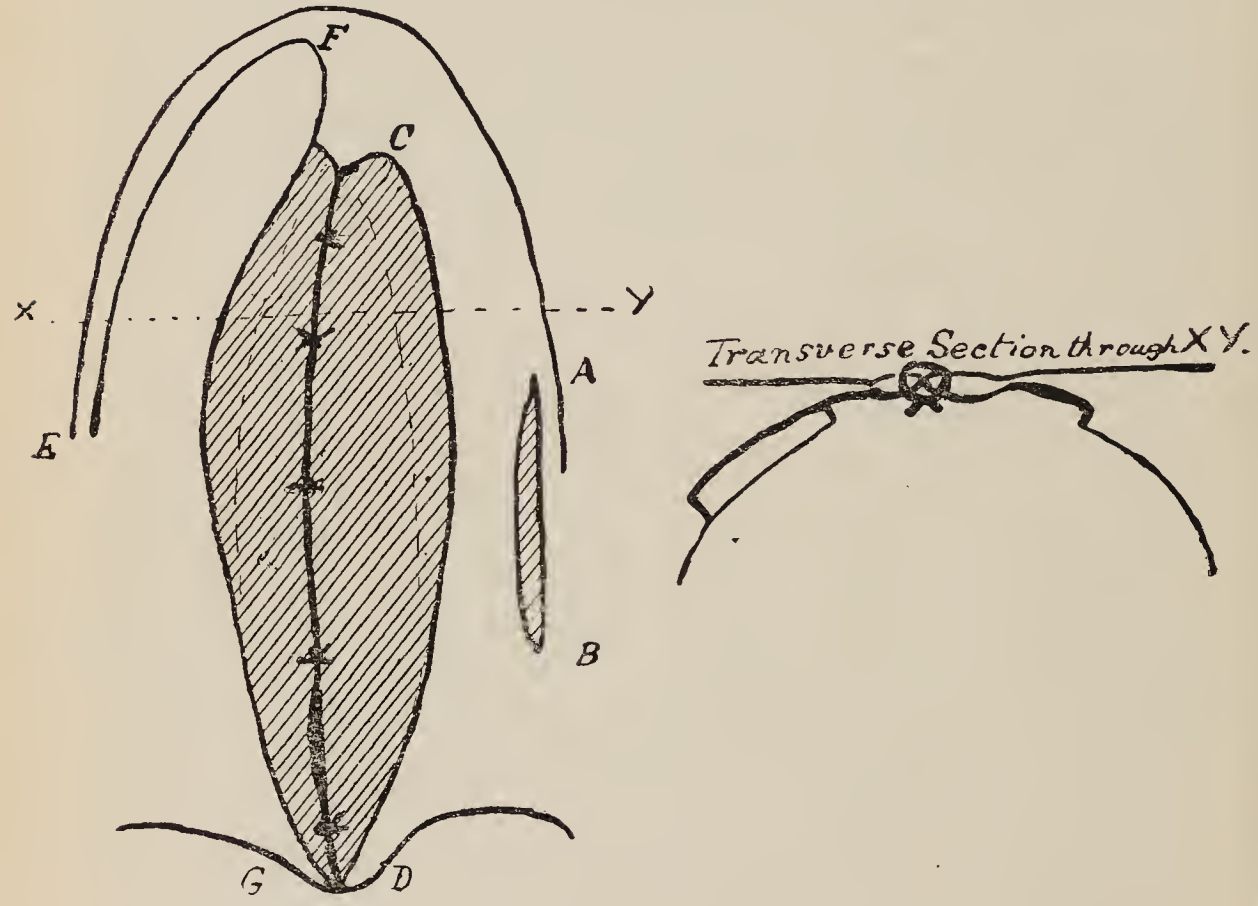
At the Royal Medical and Chirurgical Society on April 24, 1894, Mr. Davies-Colley read a paper on an operation for the cure of cleft of the hard and soft palate. He said that the following



STAGE 1.

method of closing clefts of the hard and soft palate had been devised by him nearly a year ago, and was a modification and extension of an operation for closing clefts of the hard palate

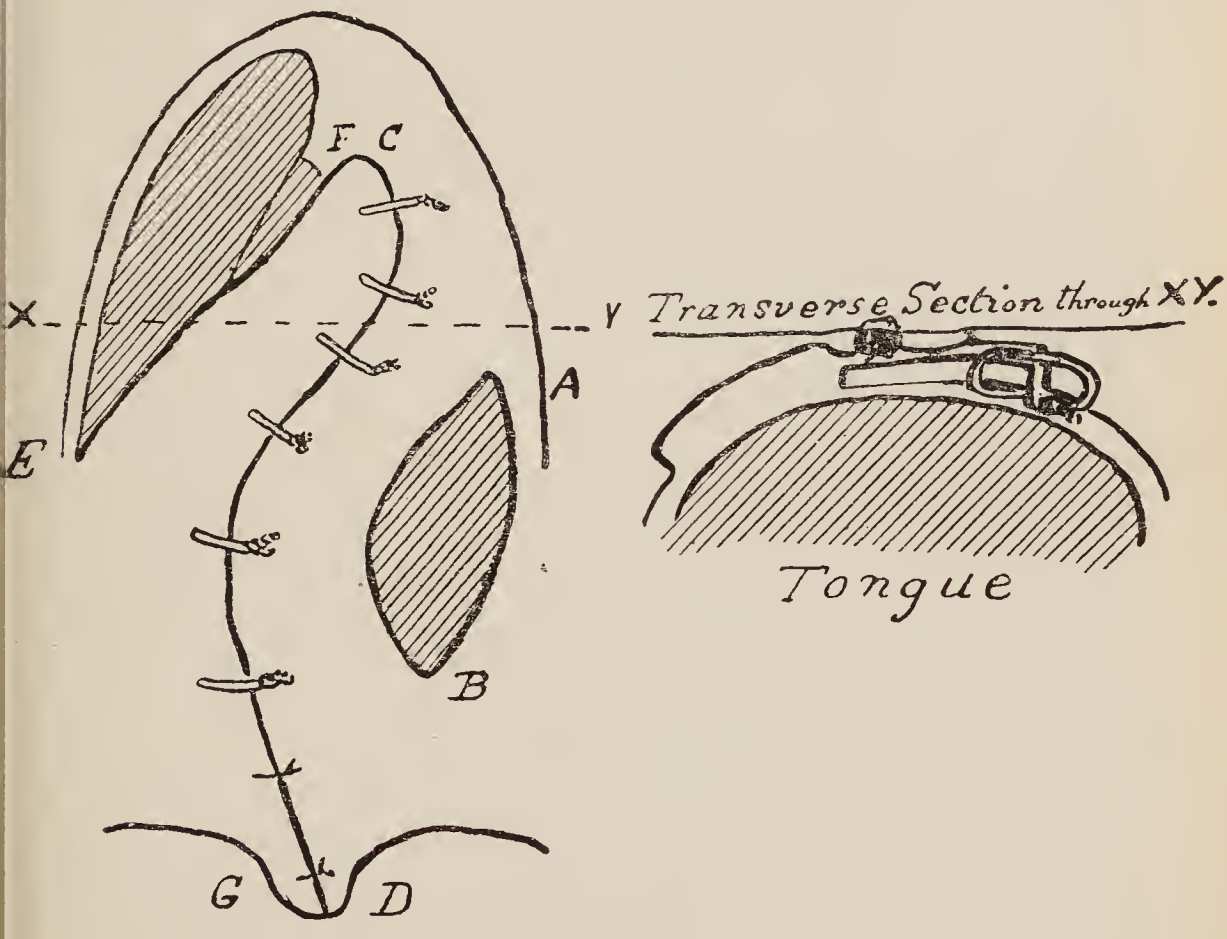
published by him more than three years ago. The operation might be divided into three stages, which he explained by the help of diagrams. Stage 1.—(*a*) An incision, *A B*, was made down to the hard palate in front, and behind through the soft palate, with its centre just internal to the last molar tooth. With a raspatory the muco-periosteum was separated from *A B* inwards. (*b*) An incision, *C D*, was made about a quarter of an inch from the cleft in front. It ran parallel to the cleft backwards, and was continued to the tip of the uvula, splitting the soft palate to the depth of about three-eighths of an inch in front and a less amount behind. The muco-periosteum between *C* and *D*



Stage 2.

and the cleft of the hard palate was separated inwards as far as the edge of the bone. (*c*) A triangular flap, *E F G*, was raised from the other side of the palate in such a way that the anterior extremity was free, and the inner margin ran parallel to the edge of the cleft at a distance of one-sixth of an inch. In the soft palate the incision was continued backwards so as to split that structure in the same way as on the other side. The muco-periosteum of the hard palate internal to *F G* was separated inwards and left attached to the edge of the bone. Stage 2.—The mesial flaps—viz., those internal to *C D* and *F G*—were

united by fine silk or catgut sutures, and continuously with this union the upper planes of the split soft palate were brought together. A bridge was thus formed across the whole cleft with a mucous surface directed upwards and a raw surface downwards. Stage 3.—The edge, *F G*, of the triangular flap in front and of the lower plane of the soft palate behind was united by silver wires and one or two silk sutures to the edge, *C D*, of the hard and soft palate of the other side. A second bridge was thus formed across the whole cleft, with a raw surface looking upwards and a mucous surface downwards. The after-



Stage 3.

treatment was that of the ordinary operation, except that as there was no tension in the hard palate, and very little in the soft, the sutures might be left in from three to six weeks. The advantages claimed for this operation were—(1) no tissue had to be pared away; (2) a much larger extent of raw surface was brought into close contact than in the ordinary operation; (3) the tension was small; (4) the upward pressure of the tongue was beneficial, as it pressed the lower against the upper bridge; (5) some advantage was gained by using the muco-periosteum of one side in front of the cleft to

help in bridging the gap of the hard palate. The only drawback he knew to the operation was that the application of so many sutures made it rather longer than the ordinary operation. In each of the six cases upon which he had employed this method union had been complete over at least four-fifths of the cleft. (The Lancet, April 28, 1894, p. 1069.)

ENTERALGIA.

Heinrich Stein (*Centralbl. f. die ges. Therapie*, August, 1894) advocates with Bamberger the use of the term "enteralgia" for those cases of intestinal colic depending on a functional disturbance or neurosis, confining the term to those conditions in which the nerves only are affected. Enteralgia is met with in so-called cases of nervous diarrhœa, in the affection formerly termed "enteritis membranacea," but now held to be a functional disturbance ; in toxæmia, the result of lead, &c. ; in gout and malaria. The pain itself usually comes on spasmodically, without apparent cause, and is of variable duration. Its character and the description given vary, but it is usually referred to the umbilical area, and the abdominal wall is retracted. The treatment is often difficult ; drastic purgatives should not, however, be given, but a condition of rest should rather be aimed at. Constipation should be counteracted by enemata, oils, or small doses of calomel, and a quiet state of the bowel may be produced by means of high temperatures, strong electric currents, alcohol, opiates, chloral, or atropine. The general condition of irritability requires bromides and tonic treatment. (Epitome of the British Medical Journal, September 1, 1894, p. 33.)

FISTULA IN ANO AND PHTHISIS.

In considering this question there are two points which I think it is well to bear in mind :—(1) Phthisis frequently runs a very chronic course ; it may become quiescent or may even be cured. Cavitation by no means necessarily implies that the patient has only a short time to live. (2) Fistula in association with phthisis often causes very great mental distress, the patients thinking much more of the fistula than of the lung trouble. Such patients, if told that nothing can be done for the relief of the fistula, are very apt to lose hope, and thus the progress of the phthisis is unfavourably influenced. It appears, then, that the best course is to be guided by the activity of the tuberculosis in deciding the question of operation. If the tuberculosis is very active do not operate, unless the fistula is causing great pain and distress. If the tuberculosis is comparatively quiescent an operation may safely be undertaken, and will, in the majority of cases, be followed by a good result.

Cavitation of the lungs is not an absolute bar to operation, provided that the symptoms are not very distressing. The old idea that the wound would not heal after operation is now no longer tenable. In my cases only one showed no signs of healing, and this was a man with active disease of the lungs, cavitation, hectic, and constant cough. He died two and a half months later, but I believe that the operation itself had no influence in hastening the fatal result. With regard to the influence of the healing of the fistula on the course of the phthisis I have made special enquiries, and have found that the general health improved and remained good for many months after operation in almost every case. Several showed marked improvement, which has continued up to the present time, and two have written to me, one ten months and the other eighteen months after division of the fistula, stating that they have completely lost their coughs and hæmoptysis, and that they feel perfectly well. Each case must be decided upon its merits, but I am convinced that the range of those suitable for operation is much wider than most text-books would lead us to suppose. (Mr. Platt, Medical Chronicle, June, 1894, p. 172.)

FISTULA IN ANO.—Radical Cure.

Goelet (*American Medico-Surgical Bulletin* June 1, 1894) describes an improved operation for fistula in ano which does away with the usual, troublesome, after-treatment in these cases, by securing primary union, and affords complete retentive power, even if there are two fistulæ, and the sphincters must be divided in two places. This result is obtained by carefully uniting the raw surfaces by means of sutures, introducing first continuous buried catgut sutures for the deeper structures, including the muscles, and separate, interrupted sutures of chromicized gut for the mucous membrane and perineum. Emphasis is placed upon the importance of previous divulsion of the sphincter, strict asepsis, thorough curettage of all fistulous tracks, the use of buried sutures for uniting the deeper structures, and separate superficial sutures for the mucous membrane only, with inactivity of the bowels, for five days following the operation. In favour of this method of suturing, as against the introduction of sutures through the mucous membrane of the rectum, to include the deeper structures, is the avoidance of the danger of infection by leakage along the track of the suture, as well as obstruction to the circulation, and consequent œdema that would interfere with primary union. (Medical News, June 30, 1894, p. 720.)

GASTRIC CARCINOMA.—Early diagnosis of.

In the *Deut. med. Woch.*, May 17, 1894, Cohnheim of Boas's Poliklinik contends that it is possible to make a fairly certain

diagnosis in the absence of a tumour. The old idea that chronic gastritis is accompanied by lactic and fatty acid formation is disputed, but in cases of carcinoma an intense reaction to Uffelmann's test for lactic acid appears. For such an intense reaction stagnation of the gastric contents and a lasting absence of free hydrochloric acid are necessary. If only one of these conditions is present, as in chronic gastritis or dilatation of the stomach, such a reaction does not appear. The author relates a case in which a simple ulcer was suspected, and in which treatment had no lasting effect. When the stomach contents were at length examined no free hydrochloric acid was present, and Uffelmann's test gave a marked result. The stagnation of the gastric contents here was against chronic gastritis, where the food passes into the intestine within the usual time. Later, besides other symptoms, there was marked wasting, and yet no tumour could be felt. At the necropsy a limited growth was found at the pylorus. The author points out that in this case, in the absence of recognisable tumour, a correct diagnosis was made six months before death, chiefly from the constant and marked presence of lactic acid. Within eleven months ten such cases were seen without recognisable tumour, all of which gave a positive reaction with Uffelmann's test, and yet no such reaction was ever observed in cases of gastrectasis or of chronic gastritis with absence of free hydrochloric acid. The author lays stress on the importance of early diagnosis in regard to the question of possible removal. Lastly he refers to the new test proposed by Boas for lactic acid in the stomach contents. (Epitome of the British Medical Journal, June 16, 1894, p. 93.)

GASTROSTOMY BY THE METHOD OF WITZEL. In this method the abdominal cavity is opened, the stomach drawn out, and a moderate-sized rubber tube is inserted into the stomach toward the cardiac extremity, through as small an opening as will admit it. The gastric end is then buried for about two inches by two rows of ordinary Lembert, or Cushing right-angled sutures. The free end of the tube is then brought out through the abdominal wound, and is either fastened there, or possibly after a time may be removed and inserted as needed. The great advantage of this operation is the ureter-like, oblique entrance of the tube into the stomach ; and, as is shown by the post-mortem examination in one of Meyer's cases, the result is a nipple-like protuberance into the calibre of the stomach, which will prevent effectually the escape of any fluids. This seems to me by far the best method yet devised, as it is simple, moderately rapid, and, above all, it is effectual in preventing any leakage. It is interesting to note that Zweifel, of Leipzig, has used the same process as Witzel in making an artificial

urethra. This idea was suggested by Witzel in his paper. In a case of carcinoma of the urethra in a woman, Zweifel extirpated the entire urethra and part of the bladder, closed the latter viscus, and then by a supra-pubic cystotomy made an artificial urethra after Witzel's method. (Dr. W. W. Keen, Annals of Surgery, December, 1893, p. 643.)

LATENT HERNIA A CAUSE OF ABDOMINAL PAINS.

Mr. W. H. Bennett discusses in the course of a clinical lecture certain instructive cases in which abdominal pains attributed to "indigestion" and the like were found to be due to small latent herniæ, *i.e.*, hernia of which the local signs are insufficient to attract attention. The lecture concludes as follows:—These cases will be sufficient to impress upon you the fact that symptoms are not always exactly what they seem, and more especially to emphasise the desirability, in every case of pain about the abdomen, no matter what the patient tells you the cause may be, or what may have been said by other persons concerning it, of invariably making a careful examination of the whole abdomen. In these cases I have mentioned the cause of the distress and discomfort from which the patients suffered would never have been determined at all without the thorough examination of the abdomen which was made. For instance, in the second case, where the little nodule of omentum in the middle line of the abdomen existed, unless I had made an examination very carefully indeed, it is almost certain that I should have missed the spot which the patient recognised as that from which all her discomfort seemed to start. In consequence of that good rule and its rigid application these patients, at all events, were relieved of discomforts from which they had been suffering for many years, and from which they had altogether failed otherwise to obtain relief. It is, therefore, an excellent thing to bear in mind what I have said about the necessity of a general examination of the patient's abdomen in cases of apparent "dyspepsia." In all these cases of abdominal pain it is also wise, especially if the pain be "crampy," to examine the scrotum in order to ascertain whether both testicles are in their natural position, because I have at the present moment within my recollection another case, something like those of which I have been speaking, in which all kinds of obscure abdominal pains had existed for some years, during which the patient had been treated for many conditions—amongst others, that of floating kidney, which did not appear to exist. There was on the left side what is called a "migratory testicle"—a testicle which, as you know, is sometimes in the scrotum and sometimes in the inguinal canal, because the upper

portion of the tunica vaginalis has never been properly obliterated. In such cases the testicle, when it rises into the inguinal canal, is occasionally retained there for a short time and subjected to a certain amount of pressure in consequence. Irritation follows, and curious pains occur about the abdomen, referred sometimes to the pit of the stomach and sometimes to the loin, but often, curiously enough, not to the testicle itself. That is another point worth remembering in cases of abdominal pain of this sort. In all these cases, therefore, in addition to examining the abdomen itself and the inguinal canals, the scrotum should be investigated in order to make sure that the testicle is in its natural situation, and to see whether it is possible, with a little gentle pressure, to push it up into the inguinal canal. If that is possible, you are justified in concluding that these vague, intractable abdominal pains may perhaps be due to the abnormal condition of the testicle which I have just mentioned. If this is so, the pains can be entirely removed by the use of a well-fitting light truss to prevent the unnatural upward movement of the testicle. (The Lancet, September 15, 1894, p. 619.)

MOUTH IN SICK PERSONS.—Care of the.

Rosenbach (*Zeit für Krankenpflege*, April, 1894) says that in many illnesses there is almost sure to be secondary trouble in the mouth if preventive measures be not taken. A warning sign is dryness and redness of the tongue and mucous membrane of the mouth, with difficulty in swallowing; further signs are an evil odour from the mouth, coated tongue and gums, bleeding of the gums, &c. Just as special care of the mouth is required in patients with carious teeth, smokers and chewers of tobacco, so it is also in the case of unconscious or paralysed persons; patients with fever or suffering from chronic digestive complaints; those taking medicines, such as mercury or iodides, or who, on account of general weakness, have to take strong alcoholic drinks; but, perhaps, the most important class of those in whom special care of the mouth must be taken are patients with fever. Parasites are always present in the mouth, but it is only when the tissues are weakened that they undergo invasion by these parasites, which become then really pathogenic. There is nothing which one can do for sick persons which is unimportant, and by neglect in the care of the mouth convalescence may be retarded. Rosenbach concludes with the following rules:—(1) Patients with good digestive powers, free from fever, and with no loss of consciousness require no more than the ordinary care of the mouth. (2) In children and very old patients the less solid food taken the greater should be the care with the mouth. They should rinse the mouth out several

times a day with lukewarm water containing a little common salt, tincture of myrrh or eau-de-Cologne added to stimulate secretion. When there is a tendency to bleeding of the gums or when the teeth are bad a pinch of powdered boric acid may be twice daily rubbed in between the lips and gums. Patients with false teeth should remove their false teeth when, owing to loss of appetite or chronic gastric disturbance, they cannot take solid food. (3) In patients with partial loss of consciousness the mouth should be examined several times a day for small sores, such as may arise from the pressure of the teeth on the lips, &c. Such sores should be powdered with a little boric acid or chlorate of potash, and the cracks at the corners of the lips heal quickly if dried with a clean towel and treated with boric acid or vaseline. The mucous membrane may be stimulated by wiping the tongue and mouth and pressing on the tongue with a moist towel every two or three hours; if necessary, the hinder part of the tongue should be cleaned with a wad of cotton wool fastened to a stem. If the patient sleep with the mouth open the air in the room must be kept moist; a moistened layer of muslin laid on the mouth may be of some service. (4) Patients with fever should have something to drink—cold water or weak lemonade—at least every hour; one must not wait until the patient asks for drink. Besides preventing dryness, the fluid maintains the activity of the glands and the whole function of the mucous membrane. Many patients are prevented from drinking by a painful, dry and cracked condition of the lips, and therefore all feverish patients should from the commencement of their illness have their lips rubbed several times a day with vaseline or fat. In protracted cases of fever the mouth may also be swabbed out with oil, fat, or greatly diluted glycerine. (Epitome of the British Medical Journal, May 28, 1894, p. 83.)

NECROSIS OF THE PANCREAS AND FAT NECROSIS.

At the International Medical Congress (1894), Dr. John Lindsay Steven (Glasgow), read a paper on this subject. A short summary of the literature was given, and the work of Zenker, Balser, Chiari, Fitz, and Langerhans, was more particularly referred to. Two cases of pancreatic disease associated with multiple fat necrosis were then related in detail. The first occurred in 1889, and was that of a very stout man, a heavy drinker, aged 30, who died after an illness of four days, during which the symptoms were mainly those of acute intestinal obstruction with collapse and fulness in the epigastrium. At the post-mortem examination there was found multiple fat necrosis of the abdominal fat, with hemorrhage, enlargement, and infarction of the pancreas. The

second case was that of a woman, aged 34, who had been suffering from gastric pain for five months, since the birth of her last child. An obscure tumour was detected during life in the upper part of the abdomen, but it was impossible definitely to make out its precise nature. After death entire sequestration of the pancreas was discovered, the necrosed organ being contained in a large peripancreatic peritoneal cyst containing inky-black fluid. Here also there was multiple fat necrosis, and the body was very obese. In neither case was there anything remarkable in the other organs of the body. A short statement of the microscopic appearances was then given, after which the author formulated his conclusions thus: (1) In fat necrosis and necrosis of the pancreas we have two distinct and independent lesions, that is, the one may exist without the other. It is possible, also, that fat necrosis occurring in very fat subjects may be analogous to coagulation or caseous necrosis occurring in the central parts of a large neoplasm. (2) If fat necrosis be very extensive it may lead by confluence of neighbouring areas either to localised or complete necrosis of the pancreas; and the two cases recorded may be looked upon as illustrating different stages of the same process. It is necessary, however, to place pancreatic necrosis arising form this cause in a category by itself. (British Medical Journal, April 14, 1894, p. 796.)

OBSTRUCTIVE JAUNDICE.—Treatment.

Dr. Dujardin-Beaumetz divides this condition into three classes with reference to its causation: (1) Obliteration from a calculus. (2) Obliteration from inflammation. (3) Obliteration from compression by tumours—the last belonging exclusively to the domain of surgery. Hepatic calculi are more frequent in women, and it is probable that the corset is an important factor in their causation, which is further aided by the usual costo-superior type of respiration. In these cases systematic massage can do much in relieving the causative factor. Of the cholagogues, the watery alcoholic extracts, as podophyllin, cascarillin, and euonymin, and even sodium salicylate, can be of service. To these should be added alkalies, as the waters of Vichy or Vals. For the treatment of hepatic colic two agents have recently been introduced—oil and glycerine. The oil has been the subject of numerous papers, and has achieved considerable success, but it possesses the marked inconvenience of being repugnant to the patients, and they swallow with considerable difficulty, at one time, the large amount (seven ounces) which is required. Glycerine in much smaller quantity, two and one-half to five drachms, appears to be equally effective, either given clear or mixed with water. If the latter fails, then it is necessary to resort to anodyne suppositories, either sprays

over the hepatic region, hypodermatic injection of morphine and atropine, or even to chloroform if the pain is acute. The obliteration from inflammatory action, which is usually the consequence of a duodenitis, requires different treatment. The duodenitis may be the result of an excessive alimentation in quality and quantity, or an incomplete mastication. It is necessary to regulate and increase the number of the meals—for each meal, by giving rise to reflex phenomena, produces an increased flow of bile. Irritant foods must be avoided—those which increase the gastric acidity, especially alcohol and liquids containing it. In the advanced stages it is necessary to resort to intestinal antiseptics, of which the most in use are salol, bensonaphthol, and the salicylates. Salol, usually the best of all, is here unavailing, because the bile being arrested, the contents of the duodenum are acid, and no decomposition of the drug occurs. To obtain antiseptic effects from benzonaphthol one drachm or more each day is required. Of the salicylates, bismuth salicylate is the best. Since this colours the fæces it is difficult to arrive at a true understanding of the patient's condition; to avoid this inconvenience asaprol has been substituted with advantage. Calomel is useful because it is at the same time a purgative and an antiseptic; but it should be used with caution if the treatment is to be prolonged. Constipation is always an important symptom, and the use of Rubinat, Carabana, Villacatras, and even Carlsbad is advisable. Pancreatin may be useful in some cases.—*Bull. général Thérapeutique*, 1894, 18e livr., p. 385. (The American Journal of the Medical Sciences, September, 1894, p. 336.)

PANCREATIC HEMORRHAGES.

Nimier (*Rev. de Méd.*, May, 1894) discusses this subject with illustrative cases. He excludes those cases in which the pancreatic lesion is of secondary importance, as in advanced cardiac disease, &c. By the term "pancreatic apoplexy" is understood a spontaneous effusion of blood into the gland with or without effusion into the neighbouring cellular tissue. Usually the patient, previously well, is suddenly seized with severe pain, chiefly in the epigastrium, more or less tympanites, nausea, vomiting, and generally constipation. Severe collapse supervenes, and death occurs in a few hours or after some days; occasionally the symptoms develop less rapidly, and the course of the disease is an interrupted one. The pain is the most prominent symptom; it may be accompanied by a sensation of heat in the epigastrium, especially when the stomach is empty, and by the eructation of a liquid similar to saliva. There may also be a dull pain just above the umbilicus, and referred deeply to the vertebral column. The richness of the nerves in the

neighbourhood of the pancreas deserves attention in respect to the symptoms. The respiratory embarrassment cannot, however, be thus explained. Pancreatic hemorrhage should be thought of if the symptoms of peritonitis develop without obvious cause, or where it stimulates biliary colic, no hepatic symptoms having been previously noted. It usually occurs in fat persons, or in the subjects of arterio-sclerosis. The hemorrhage due to arterio-sclerosis differs from that seen in the obese. The anatomy accounts for the diffuse infiltration of the gland. In some cases remains of old hemorrhages are seen. The treatment cannot be very satisfactory; even local intervention must be quite empirical, owing to difficulty of diagnosis and the want of knowledge of the physiological pathology. In traumatic hemorrhage the blood usually collects in the lesser sac of the peritoneum; it is the direct consequence of the injury. A more or less considerable quantity of fluid is added owing to the tearing across of Wirsung's duct. Where the pancreas is already diseased a slight injury may suffice to cause the hemorrhage. In Brown's case no ferments were at first found, but they appeared later. It has been denied by some that these cysts are really traumatic; according to them the injury has produced some alteration in the pancreas, and thence a true apoplexy of the gland. The interval seen in these cases might seem to favour this view. In these traumatic hemorrhages the line of treatment is not open to doubt. The danger is not as a rule pressing; one can wait until a tumour appears. The cyst is then stitched to the abdominal wall and drained. Tapping should be avoided, as it is not without danger and is ineffectual. (Epitome of the British Medical Journal, June 23, 1894, p. 97.)

PANCREATITIS, ACUTE.

At the Clinical Society, on October 12, 1894, Dr. J. E. Paul read notes of this case, which was that of a man, aged 43, who was suddenly seized with colicky pain in the abdomen, which lasted a few minutes. Next day he had a recurrence of the pain. During the two following days he vomited three times, and his bowels were confined. No history of any similar attack or of any abdominal trouble. On examination his abdomen was slightly distended, but not very tender. Nothing abnormal could be detected by manipulation. Rectum loaded with fæces. Pulse, 82 per minute, fairly full. Temperature, 100·6°. Tongue slightly furred. Was ordered an enema, which evacuated a large constipated, but otherwise normal, stool. An hour and a-half later he was noticed to be collapsed with cold, clammy extremities, and radial pulse scarcely perceptible. He died eight hours after admission. Temperature rose to 104° just before death. Urine: Two drachms passed just before death,

containing about a quarter albumen, granular and hyaline casts, a few red blood corpuscles, no sugar. On post-mortem examination the peritoneum covering the pancreas was found to be glued with recent lymph to posterior surface of stomach. The pancreas was much swollen, and hemorrhages were to be seen most numerous in the tail. Stomach and duodenum healthy. The rest of the organs healthy, except cloudy swelling of kidneys. No fat necrosis. Microscopic examination of the pancreas showed considerable disintegration, with total destruction in parts of the structure of the organ. Numerous hemorrhages were to be seen, and clumps of crystals of hæmatoidin. (British Medical Journal, October 20, 1894, p. 869.)

PERFORATIVE ULCERATIVE ENTERITIS.

Maragliano (*Berl. klin. Woch.*, March 26, 1894) reports three such cases with no evidence whatever of enteric fever or tubercle being present:—(1) A strong man took a purgative on account of constipation on April 23; later he had dyspeptic symptoms and abdominal pain; on May 5 there was vomiting, which had a fæcal odour; on admission three days later there was considerable abdominal distension; an exploratory puncture gave pus; the patient, desperately ill, died in two days; there was acute fibrino-purulent peritonitis with several ulcers in the small intestine, two of which had perforated. (2) A man, aged 33, had suffered from abdominal pain on and off for several years past; at the end of April the pain became intense; on May 14 there was in addition vomiting, which persisted; on admission the abdomen was distended; he died two days later; in addition to the peritonitis there was a perforating ulcer in the ileum; pseudo-membrane closed the opening so as to prevent the exit of fæces. (3) A young man, aged 23, was seized after an error in diet with vomiting and constipation; a week later the abdomen was distended; he was admitted twelve days after the onset with fæcal vomiting; an exploratory puncture yielded pus; the abdomen was opened by Caselli and 50 cm. of intestine (including the site of the perforating ulcer) resected, but the patient died five hours later. The author believes that these cases are examples of very acute enteritis with the rapid formation of several simple ulcers which may perforate. Bacteriological investigations revealed a micro-organism very like the B. coli communis. The author refers to other similar cases which occurred about the same time. He would divide the disease into three stages:—(1) A functional stage, in which the soil became suitable to the growth of the micro-organism; (2) the stage of enteritis lasting about five or six days; (3) stage of ileus corresponding to the perforation. The diagnosis should be made by help of (*a*) exact history,

(*b*) the presence of fever, and (*c*) purulent exudation into the abdomen. The diagnosis may be very difficult, and possible only in the third stage; the exploratory puncture is harmless; the prognosis is necessarily very bad. As the diagnosis is unfortunately possible only after perforation, the condition of the patient makes any treatment hardly useful or possible. (Epitome of the British Medical Journal, May 12, 1894, p. 73.)

PERIARTERITIS OF SYPHILITIC ORIGIN.

At the Edinburgh Medico-Chirurgical Society, on May 2, 1894, Dr. A. Bruce read a paper on two cases of Nodose Periarteritis. The first case was that of a man, aged 37, who had been ill for two years, and in whom the tertiary symptoms appeared after eighteen months. In the end there was diplopia, paralysis, dilatation and fixation of the left pupils, convulsions, and death in six hours. There was fluid in the subarachnoid space, no thickening of the pia mater; there were clumps on the basilar, posterior communicating, and vertebral arteries in the form of fusiform swellings; the pons was softened here and there; there was marked periarteritis and foci of softening; there was little affection of the inner coat of the arteries, and there was no meningitis. The second case was that of a woman who, on admission, was all but paralysed in both upper and lower limbs, the tongue could only be protruded as far as the lips; there were a few spots on the legs, the temperature rose to 104·2° and the pulse was 142, and she died of paralysis of the neck and tongue. She had been infected in the discharge of her duties in Soho Hospital. She was in St. Thomas's Hospital from December to October with skin affections and paresis of the face, &c. There was optic neuritis. Later paralysis of the limbs set in, and this lasted six weeks. Then she improved, and ultimately was discharged. She came to Edinburgh, and was very well till two days before admission to the Royal Infirmary. On post-mortem examination there was lepto-meningitis, the basilar and cerebral arteries were in the same state as in the first case, there were several areas of congestion and softening in the pons, there were changes in the outer but no change in the inner coat of the vessels, there was great thickening of veins (a periphlebitis), the brain substance under the membranes was softened, and nearly all the vessels contained a thrombus, and some of these had begun to organise. Only some six or eight cases of this condition had been described. Probably the first description of syphilitic periarteritis was given by Dr. Batty Tuke in the *Journal of Medical Science* for 1874. True gummatous formation on the outer coat was the third stage of this periarteritis. In the more acute forms there was simply the cellular infiltration. In the less acute forms

there was a tendency to the formation of gummata. The longer the condition lasted the more likely were gummata to form. The conclusion one must come to from a study of these two cases, Dr. Bruce held, was that there was a perfectly distinct syphilitic affection which attacked the outer coat of the arteries. (British Medical Journal, May 12, 1894, p. 1024.)

STOMACH, CHRONIC DILATATION OF, TETANY IN.

At the Clinical Society, on October 12, 1894, Dr. Soltau Fenwick described two cases. (1) A carpenter, aged 34, was admitted into hospital for severe vomiting and cramps in the arms and legs. He stated that for six months he had suffered from pain in the stomach after meals and attacks of vomiting. Two days before admission he was suddenly seized with cramps in the muscles of the thighs, legs, arms, and hands immediately after vomiting a large quantity of fluid. On examination, he presented all the symptoms of tetany in the arms, fingers, and lower extremities. The superficial and deep reflexes were exaggerated, and the urine retained. The temperature was normal, but the respiration was somewhat hurried, and face and limbs were rather cyanosed. The stomach was dilated to the navel, and the bowels were confined. The tonic spasm disappeared suddenly on the fourth day, but reappeared three days later, and lasted fourteen hours. The urine contained a trace of albumen and sugar. Five further attacks of tetany occurred, and death supervened from respiratory failure within twelve hours of the commencement of the seventh. At the necropsy, the stomach was found to be considerably dilated, owing to the contraction of a chronic ulcer in the pyloric end of the organ. The other organs were healthy. (2) A man, aged 46, who had suffered from ulceration of the stomach for four years, was suddenly seized with tonic spasms of the extremities after an unusually severe attack of vomiting. The condition closely resembled true tetany, and the seizures were repeated several times. The stomach was found to be considerably dilated, and it was accordingly washed out with warm water, and the patient was instructed how to perform the operation for himself. Two years later there had been no recurrence of the spasms, and the general health had improved considerably under the use of lavage twice a week. The stomach was still dilated but the pain and vomiting were much less severe. Tetany complicating chronic dilatation of the stomach was first recorded by Kussmaul in 1869, and since that time 26 cases of the affection had been published. In 92 per cent. of the cases which came to a necropsy a chronic ulcer near the pylorus was found. In every case the tetany followed severe vomiting. All varieties of the

disease were extremely fatal, and of the 26 no fewer than 18, or about 70 per cent., terminated in death. Probably an organic poison was manufactured in the stomach which, by its absorption into the general circulation acted upon the central nervous system as a convulsant. The rational treatment which had met with considerable success was the regular employment of lavage, either warm water or a weak solution of resorcin being used. (British Medical Journal, October 20, 1894, p. 869.)

Stomach, Perforative Ulcer of, Treated by Laparotomy; Recovery.

J. L., aged 32, married, one child, was admitted into the Infirmary on October 27, at 6 p.m., suffering from acute pain in the epigastric region, and in a very collapsed condition. My colleague, Dr. E. O. Daly, diagnosed ruptured ulcer of the stomach. There was acute pain over the left hypochondriac region, loss of liver, dulness, and some general distension of the abdomen. After consultation with the staff, the first shock of the perforation having passed off and the patient having rallied somewhat, I decided, three hours after the supposed rupture of the ulcer into the peritoneal cavity, to perform laparotomy, stitch up the ulcer if found, wash out the peritoneal cavity, and drain. Ether having been administered by Dr. Waters, the assistant house-surgeon, the first incision, 5 inches long, was made above the umbilicus in the median line. On opening the peritoneal cavity there escaped a large quantity of flatus; this distended the peritoneum and made the opening of it less difficult. I drew the stomach into the wound without much trouble, and was guided by the escaping fluid contents to the anterior and upper surface very near the entrance of the œsophagus; in fact, so near that I could readily detect the perpendicular muscular fibres of the œsophagus entering the stomach walls. The opening was the size of a goose quill. It had clean-cut edges and was the centre of an area of thickened walls, about $1\frac{1}{2}$ inch in diameter. I kept my left forefinger over the opening to prevent further escape of stomach contents—which, by the way, was apparently nearly empty—and after thoroughly cleansing by pressing the ulcer and its surrounding hardness backwards and drawing some of the stomach up, I was able to double the surface inwards, so bringing the two healthy peritoneal surfaces together by infolding. Then when these were fixed by eight Lembert's stitches, I again, with a continuous suture, brought the two surfaces together external to the first row of sutures. The next step, and the most important, was the toilet of the peritoneum; this was performed by washing out with a douche, using boiled water at a temperature of 105° to 110°. This was carried out, with the assistance of my colleague Mr. Evans, most satisfactorily.

Lastly, for drainage purposes, I made an incision 2 inches long below the umbilicus and just over the pubes. More gas escaped; and, after again washing out from below most thoroughly, I inserted into Douglas's pouch a long glass drainage-tube, which we could empty by syringe and tube, still washing with the boiled water until the fluid came away quite clear. The patient rallied directly the washing-out process, which acted as a stimulus, commenced. As it was thought that the method of suturing in layers, which I prefer, might be too tedious and exhausting to the patient, I closed the wounds with deep sutures and a few superficial ones. The wounds were dressed with iodoform gauze and absorbent wool, and the patient was ordered to be fed by rectum with peptonised milk and brandy every four hours. On October 28 the pulse was 76, and the temperature 97·4° F. She had slept fairly, and had had no sickness. The enemata was well retained, and she had no pain. At 9 p.m. she had a little hiccough and slight cough, and was ordered liquor opii sedativi ℥iij every three hours if required. Only one dose was given. On October 29 the temperature was 97·60° F., and the pulse 120. The cough was a little better. The respirations were 30. She had no pain, but suffered from slight sickness. On October 30 the patient was quite comfortable; no vomiting; hiccough troublesome at times; slight headache. Had enemata every four hours; no pain after them; bowels open once slightly at 6 a.m. Temperature 97·2°, pulse 114, respirations 22. During the day I ordered half-pint injections of warm water between food. Enemata were given on account of the great thirst; at 10 p.m. sleeping quietly. October 31. She had a quiet, comfortable night; no vomiting and very little hiccough. Temperature 98·60°, pulse 102, respirations 20. Removed drainage-tubes; wounds almost healed. *Remarks.*—To the position of the ulcer, which was fairly fixed by its surroundings, I attribute in some degree the comparative ease with which I was able to command the walls of the stomach. (Mr. R. H. Bourchier Nicholson, Surgeon to the Hull Royal Infirmary, British Medical Journal, November 3, 1894, p. 982.)

SUBDIAPHRAGMATIC ABSCESS, COMMUNICATING WITH THE RIGHT PLEURA.

At the Clinical Society, on October 26, 1894, Dr. Hector Mackenzie related for himself and Mr. F. C. Abbott particulars of this case. The patient, a boy aged 10, was admitted to hospital after an illness of four weeks, the onset of which was sudden and characterised by severe pain in the epigastrium and right hypochondrium, accompanied by vomiting. About a week after the onset a swelling had been noticed in the epigastrium. When seen at the hospital there was an acutely rounded and

reddened swelling centrally situated in the epigastrium. The right side of the chest gave the physical signs of a pyopneumothorax. Moreover, it was evident that the epigastric swelling freely communicated with the right pleura, for it became much more prominent when the patient sat up or coughed, and then distinctly gave evidence of fluctuation. It was decided to drain the subdiaphragmatic abscess and the empyema by a single opening in the pleura. A portion of the sixth rib was resected just behind the mid-axillary line. Thirty ounces of exceedingly offensive thin watery pus containing some flakes were evacuated. On exploring with the finger the upper surface of the liver was felt through an opening in the fore part of the diaphragm. The whole cavity was well irrigated with warm boracic, and a double drainage-tube inserted. The cavity was washed out daily, but the discharge continued to be offensive for several days. On the thirty-fifth day after the operation the wound was almost healed, and there was no discharge. The patient left the hospital cured on the forty-seventh day. The lung expanded well, and the only sign to be detected six months later was a slight relative dulness at the base of the affected side. The history of the illness pointed clearly to an abdominal origin. The most probable cause was the perforation of a gastric or duodenal ulcer, and although there had been none of the usual symptoms of the former, it was not uncommon for these to be absent in cases which perforated. (British Medical Journal, November 5, 1894, p. 987.)

SUCCESSFUL CASE OF ENTERECTOMY WITH THE USE OF MURPHY'S BUTTON.

In October, 1889, I was asked by Messrs. Chubb and Vinter, of Torpoint, to see a lad who had received a severe injury by falling under the prow of the steam ferry. The principal lesion was abdominal, and resulted in acute peritonitis, from which the boy recovered after a prolonged illness. I saw him some little time afterwards, when he was suffering from fæcal impaction, and it was only after many days' use of injections and other remedies that his bowels were "cleared out." In the middle of September of this year I was again asked to see him, and the following history was obtained. His age was fifteen. Ever since the accident he had suffered from periodical attacks of violent abdominal pain, accompanied with great distension and violent vomiting, which on occasions had become fæcal. The attacks commenced after some constipation, and terminated in violent diarrhœa. Their frequency had of late increased, recurring sometimes twice a week. When I saw him he had just passed through one of these attacks. His abdomen was much distended but not tender. There was dulness on

percussion over the cæcum and ascending colon. The countenance was pinched and anxious. My diagnosis was that, as the result of the peritonitis, he had some constricting band, and my advice was that an operation should be performed for his relief. He was consequently admitted into the Private Home for Patients at Plymouth, and on September 27 I opened his abdomen. On passing my hand down into the right iliac fossa I found collapsed bowel and a broad band descending into the pelvis. The small intestine above this was enormously dilated, the circumference of the bowel being in some parts from twelve to fifteen inches. The constricting band was divided, but the intestines were glued together to such an extent that I had very considerable difficulty in separating the adhesions, as many as twenty pressure forceps being on at once. When I was able to draw out the part it was found that a dense stricture existed, through which it was nearly impossible to pass on the contents of the upper bowel. During the attempt to do so a small leak was detected at the point of stricture. It was at once decided to remove the constricted portion of the bowel. An elastic ligature was placed above and below this point and about five inches of gut were removed. The contents of the upper bowel were emptied as far as possible; it contained a large number of cherry and plum stones. The intestine was reunited with Murphy's button. A description of the method is fully given in the article alluded to above. The actual excision of the stricture and the reunion of the gut did not occupy ten minutes. During the night the patient was sick several times, and about midnight he became rather collapsed. He was fed per rectum every four hours with beef-tea and brandy. On September 28 he was very quiet and was not in pain. The temperature was 98·4° F. in the morning and 99° in the evening. He was fed by the mouth every hour with small quantities of peptonised milk and water (equal parts), with an occasional nutrient enema. On September 29 he was comfortable. He passed flatus freely by the rectum. The temperature was 99·6° in the morning and 99° in the evening. The milk-and-water was continued in increased quantity. On September 30 he passed a dark liquid motion on three occasions. On October 1 the bowels were opened; the resulting evacuation contained three orange pips. On October 2 he passed an offensive motion containing milk curds and orange pips. On October 4 the silk-worm gut sutures were removed; the abdominal wound had healed. On October 6 there had been no motion for three days. A large quantity of fæces was felt in the rectum. A simple enema produced a hard, lumpy evacuation. On October 7 he passed a loose motion containing a cherry stone, and another containing a plum stone

on the following day after an injection. On October 10, after an enema, he passed a large motion containing the button, nine plum stones, and three cherry stones. The button was coated with fæces, and the tube was blocked by a cherry stone. On October 11 the patient was quite convalescent. He was allowed to get up and take fish and chicken. *Remarks.*—The above case is in itself a very interesting one, but its importance principally consists as a record of the successful use of Murphy's button. The great objection to all intestinal resection is the length of time spent in securely suturing the ends of the gut. I was surprised at the facility with which the operation was performed. I was only familiar with the use of the button from the description I had read ; and yet I found the reunion of the gut a very easy process. The adaptation of the serous surfaces was so perfect that it was with entire confidence that I returned the bowel into the abdominal cavity. Another point worthy of notice is this : the disparity in the circumference of the bowel above and below the stricture was so great that by the ordinary method of suture very considerable difficulty would have been experienced ; but with the button all trouble of this kind was removed. (Paul Swain, Esq., F.R.C.S., Surgeon to the South Devon and East Cornwall Hospital, The Lancet, October 20, 1894, p. 209.)

TUBERCULOSIS, ANAL.

Hartmann contributes an exhaustive article (*Revue de Chirurgie*, 1894, No. 1) on this subject. He states that tuberculous fistulæ in the region of the anus may originate in neighbouring organs, as the prostate, adjacent bones, &c. There is also a variety of peri-anal subcutaneous tuberculous gumma which corresponds to those found in other regions. With these the author does not concern himself. Particular attention is called, however, to a form of tuberculous ulceration peculiar to this region, and which appears at the muco-cutaneous margin of the anus, usually just within the canal, and results in the formation of a fistula. The relation of anal fistulæ to pulmonary consumption is of interest. In 626 phthisical patients the author found and operated upon 31 fistulæ. The proportion was 6 per cent. in men and 3·5 per cent. in women. In 48 cases upon which the author operated for fistulæ, undeniable signs of pulmonary tuberculosis were found 23 times ; 2 other patients gave a tubercular family history ; while in 23 cases the patients seemed to be free from tuberculous trouble. Of 114 cases of diarrhœa in phthisical patients, 8 were found to have fistulæ, a proportion a little larger than that found in all tuberculous cases. In only 1 case in the 48 patients operated upon did the diarrhœa continue after operation. *Etiology.*—Of 29 cases observed, 22 were in men, 6 in women, and 1 in a child. Diarrhœa is more frequent than

in fistulæ; this was noted in 12 cases and probably occurs more frequently than has been supposed. Only 3 of these patients suffered from hemorrhoids. One had a previous fistula, and one an eczematous eruption. All of the patients had pulmonary lesions, some far advanced. *Symptoms.*—At the beginning of the ulceration there have been no definite symptoms, merely a little uneasiness or discomfort at defecation. There is a tendency for the ulceration to extend upward on the mucous membrane—an ulceration of the anal canal proper. The pain is very variable and the course of the ulceration is slow. *Treatment.*—As these cases are usually complicated with intestinal and pulmonary lesions general treatment is always necessary. Locally, silver nitrate, long persisted in, may be of some benefit. The galvano- or thermo-cautery may also at times be indicated, but usually the bistoury will be required. Frequently it is best to cut away the ulcer and cauterize the base. The wound should be packed with iodoform gauze. In this way permanent cures may be looked for. (The American Journal of the Medical Sciences, April, 1894, p. 457.)

AFFECTIONS OF URINARY AND GENERATIVE SYSTEMS.

ANTIPYRINE AS A VESICAL ANALGESIC.

M. E. Vigneron, from his observation of three cases, believes that this drug can render some service in urinary surgery. The first point established is that in the bladder it is perfectly harmless, even after a usage prolonged through months. In depicting the very profound and extended lesions of the bladder which increase the power of absorption of the mucous membrane, and which contra-indicate the use of cocaine—which may be dangerous even in a healthy bladder—there has not been observed any general accident, neither on the part of the skin nor in the digestive tract, nor any interference with the function of the kidneys. Even a local tolerance may be found. Antipyrine has already been used in the bladder as a hæmostatic, without any result, it is true, but also without any complication and without especially increasing the infection. It can, then, be considered as a sufficient antiseptic, even better than the boric solutions. As an analgesic its solution, left in the bladder, suppresses painful contractions. When it is placed only temporarily in the bladder for the purpose of suppressing the pain which may be produced later by a local application, it still has an analgesic action, but it is less marked. If the percentage of the solution is low (1 to 200) it does not act, or only slightly, and provided that it be kept in place for a long

time—twenty minutes at least, which is far too long for practical purposes. A stronger solution (1 to 25) acts sufficiently, in ten minutes, for diminishing the pain of an instillation or washing to be subsequently made. This treatment is indicated in all cases of cystitis in which topical treatment is painful. In bladders which are not distended, two and one-half to five drachms of the last-named solution left for ten minutes is sufficient. For distended bladder six times this quantity of a solution (1 to 100 or 200) is necessary after a preliminary washing, and this should be left in the bladder.—*Annales des Maladies des Organes Génito-urinaires*, 1894, No. 5, p. 348. (The American Journal of the Medical Sciences, September, 1894, p. 331.)

EXPLORATION OF THE FEMALE BLADDER.—New Method.

Dr. Howard Kelly (*American Journal of Obstetrics and Gynæcology*, January, 1894) has contributed an excellent article on the illumination of the interior of the bladder by his new method. The patient, lying in the dorsal position, has her thighs strongly flexed on the abdomen and tied in that position. When anæsthesia is complete the urethra is dilated to a diameter of 12 millimetres as a rule. As large a speculum as can be employed without injury to the urethra is then inserted. When the obturator from the speculum is withdrawn the bladder fills with air, and a good light, reflected from a head mirror, will enable the entire cavity to be directly inspected. This method will enable the operator to see the orifice of the ureter and pass a catheter through it if necessary. Dr. Kelly says:—"It becomes a duty to examine at once all bladder affections which are more than trifling to disclose the exact nature and the extent of the disease. Frequently the examiner will be astonished by discoveries which will relegate one by one a large number of functional affections to the domain of positive demonstrable diseases. To generalise from the cases lately under my care I am able to say that cystitis is often a localised disease, limited to a special area of the bladder. Tubercular and ulcerative cystitis can be detected at once. Tumours, calculi, and fistulæ are readily found. Cases usually called irritable bladder show definite areas of hyperæmia surrounding and between the ureteral orifices. Treatment is greatly facilitated, as direct applications to localised areas can be made with the same ease as upon the exterior of the body." In conclusion, Dr. Kelly states that "forceps, snares, tenacula, knives, and instruments for measurement can be readily used through the larger specula, from No. 12 upward." (Dublin Journal of the Medical Sciences, June, 1894, p. 532.)

GONORRHŒA.—Early Treatment of.

After treating gonorrhœa for many years with silver solutions, Dr. von Sehlen (*Monatshefte für Praktische Dermatologie*, June, 1894) formulates his experience in the following way:—The duration of treatment depends upon the length of time of infection before handling the case; therefore the applications must be made as early as possible. In favourable cases, when the infection is not longer than four days, the case should be cured in one day. In case of infection lasting eight days before treatment, three to six days are necessary for a cure; infection of eight to fourteen days requires twenty days and upward. The early treatment retards the progress of the disease along the urethra, and lessens the course of the trouble, even when the gonococcus persists. Despite the disappearance of the cocci, recurrence is not impossible, and careful watchfulness on the part of the patient is necessary while the gonococcus, through the silver applications, loses its growing energy. In fresh cases, up to the third or fourth day after the infection, strong solutions (from one-fourth to one per cent.) of silver nitrate can be injected by means of the usual small syringe; the meatus being tightly held and the urethra being rubbed backward and forward, the solution reaches all the urethral mucous membrane. This is repeated until the mucous membranes are seen to be coated white with the silver precipitate, while the fossa receives a special application of a two per cent. solution, and is coated with europhen powder, which proves a good protector. In cases of longer standing than four days he applies, by means of the two-way catheter, feeble solutions (from ·1 to 1 pro mille) in distilled water, warmed to the body temperature. The urethra soon becomes accustomed to stronger solutions, and after a few days the solution may be increased from one-fourth to one per cent., which can then be applied by means of the syringe. (Therapeutic Gazette, October 15, 1894, p. 703.)

HÆMATOPORPHYRIN AND SOME ALLIED BODIES IN THE URINE.

Mr. Priestley appends the following conclusions to an important study of this subject:—(1) Hæmatoporphyrin, and some other allied bodies, are of frequent occurrence in the urine both in health and, more especially, in disease, generally in small quantity, but sometimes in very large amounts. (2) Hæmatoporphyrinuria, even a marked degree of it, may exist, and may persist for a long time without influencing seriously the general condition of the patient, somewhat as is the case in certain

kinds of albuminuria and glycosuria. (3) In other cases, hæmatoporphyrin in the urine is correlated with extreme exhaustion, rapidly developing, and often fatal. In all these cases the patients were women, generally suffering from some mental disorder, and always of a neuropathic type, and it is to be noticed that in some of the worst cases the symptoms developed spontaneously, or at least independently of any condition or circumstance which could reasonably be set down as an adequate cause. Nevertheless, it is true that in other cases, forming a remarkable majority of the cases published, the patients were taking sulphonal when the symptoms of hæmatoporphyrin set in. When we consider that sleeplessness is common among neuropathic people, that sleeplessness is the chief early symptom in the dangerous sort of hæmatoporphyrinuria, and that sulphonal is now almost a domestic remedy for sleeplessness, the coincidence of hæmatoporphyrinuria and the taking of sulphonal is not, perhaps, so very striking. Further, when we attempt to trace the connection of sulphonal and these cases of hæmatoporphyrinuria, we are met by the following facts:—(*a*) Although men and women equally take sulphonal, only women seem to suffer from this dangerous kind of hæmatoporphyrinuria. (*b*) Hæmatoporphyrinuria has never, as yet, been known to follow a genuine over-dose of sulphonal either to men or the lower animals; but only the usual moderate doses (7 to 30 grains a day) taken in some cases for months, but in others for a few days merely. (*c*) The hæmatoporphyrinuria sometimes ceases, but generally does not cease on discontinuing the sulphonal; and sometimes begins again, but at other times does not begin again on resuming the sulphonal. The argument connecting hæmatoporphyrinuria with the taking of sulphonal is, therefore, it must be admitted, of an inconclusive sort, and at best amounts to this:—That the taking of sulphonal is sometimes followed by hæmatoporphyrinuria, but only in certain susceptible people, and the practical deduction is not to discard sulphonal, but to select the cases. In some cases it may be prescribed without fear, while in others its use should be closely supervised and frequently interrupted. After a short course of sulphonal, this drug can be detected in the urine for three days after the administration of the last dose, an interval which is also suggested by clinical observation of the effects of sulphonal on sleepless persons in whom a dose will often improve sleep for three successive nights. Therefore, after using sulphonal for a week, it should be dropped for at least half a week; and the urine should be frequently tested spectroscopically for hæmatoporphyrin in all neuropathic cases. (Owens College Medical Chronicle, September, 1894, p. 437.)

INCONTINENCE OF URINE.—Treatment.

Pousson (*Journal de Médicine de Bordeaux*, 1893, No. 21) states that the incontinence of urine in children may be classified under three pathogenic forms :—(1) That dependent upon atony of the sphincter; (2) the vesical irritability of Trousseau, without any alteration of the sphincter ; (3) irritability of the membranous portion of the urethra, or contracture of the spincter. Cases due to atony of the sphincter, and those dependent upon vesical irritability, as described by Trousseau, in which belladonna proves most efficacious, are easily understood ; but in association with contracture of the sphincter, incontinence seems paradoxical. M. Janet has given this ingenious pathogeny : such children are neuropathic, emotional, and preoccupied all day by their urinary function, interrupting frequently their play and work to micturate—polyurics and pollakiurics. This watchfulness does not entirely remit at night ; when they sleep deeply they return to it, and imbue their dreams with the desire to micturate, just as they constantly introduce it into their sports by day. In all these forms the different medicinal remedies are not to be neglected ; but when they fail, it is necessary to have recourse to local treatment, which acts by excitation of the sphincter. The induced current is the more commonly employed, and is applied by introducing into the urethral canal a slender bougie containing a metallic conductor terminating in an olive tip which is brought in contact with the sphincter. A feeble current is used and kept up for several minutes, and the operation is repeated daily. Decided improvement is obtained after several days. The author reports encouraging success with this treatment, especially in seven cases which had resisted all the usual medicaments. Among these patients a little girl was cured quite rapidly. This case is emphasized, because the efficacy of local treatment in the female has been denied. Six of the patients had atony of the sphincter, the seventh had contracture of the sphincter. All were cured rapidly. (The American Journal of the Medical Sciences, April, 1894, p. 483.)

INDICANURIA IN CHILDREN.

Mlle. Lioubitza Djouritch (*Revue mens. des Maladies de l'Enfance*, February, 1894, p. 49), after reviewing the studies of Hochsinger and Kahane, and the opposing results of Steffen, Voûte, and Carlo Giarre, proceeds to give the results of her own study on the subject. The test adopted for the investigation was as follows :—Equal parts of urine and hydrochloric acid are mixed in a test-tube, and then chloroform added and the mixture shaken for a moment. The presence of indican is shown by a violet coloration of the chloroform, the intensity varying according to the proportion of indican present. Fifty-one cases

were examined, and with each subject the examination was repeated several times. The absence of indicanuria in healthy children was confirmed. Its presence was detected, but inconstantly, in the following affections :—Typhoid fever, perityphilitis, chronic gastro-intestinal dyspepsia, bronchitis, pneumonia, pleurisy, and grave chorea. In the acute diseases above mentioned indicanuria existed very markedly during the febrile stage, but disappeared at the moment of defervescence, and did not reappear during convalescence. In tuberculosis, on the contrary, the presence of indican was constant : in one case of a little girl, rhachitic and tuberculous, it was found in decided quantity at every daily examination for a month preceding death. In another observation (pulmonary tuberculosis and purulent pleurisy in a child of two years) the daily quantity varied, but it was never entirely absent. The conclusions from the study are given as follows :—(1) Indican exists in normal state in the urine, but in so small a quantity that indicanuria must be considered as a pathological phenomenon, especially with children, whose diet is less nitrogenous than that of adults. (2) Indican being a derivative of indol, indicanuria will be especially accentuated in diseases accompanied by an over-production of indol. (3) This over-production is especially encountered in acute and chronic diseases of the digestive tract. (4) Indicanuria is constant and permanent in tuberculosis. It seems, therefore, that there exists a direct relationship between indicanuria and tuberculosis. (5) The explanation of indicanuria in tuberculosis is difficult when there exist no digestive troubles. Up to a certain point it can be explained by the profound depression of general nutrition manifested in the course of tuberculosis. (The American Journal of the Medical Sciences, May, 1894, p. 603.)

ORCHITIS.—Applications of Guaiacol in.

At a recent meeting of the Société Médicale des Hôpitaux, Balzer and Lacour (*La Méd. Moderne*, 1894, No. 28, p. 444) reported favourable results from applications of guaiacol in the treatment of orchitis. The application was soon followed by relief of pain and subsidence of the general symptoms, including fever, so that repose and sleep became possible. In the inguinal region pure guaiacol was used, but upon the scrotum an ointment containing from 2 to 5 parts of guaiacol to 30 of vaseline was applied. The applications gave rise to some burning pain, but all distress disappeared in the course of a few hours. The pain was sometimes permanently relieved after the first application, but as a rule two were required daily. As soon as the pain had ceased the applications were withheld, as they did not appear to exert any resolving influence upon the inflammatory exudate.

The applications often induced a slight erythema of the scrotum, followed by desquamation and sometimes by fissures. It is suggested that the good effects are brought about principally by a reflex influence upon the terminations of the cutaneous nerves. It is admitted that cutaneous and pulmonary absorption plays a certain part, but the rapidity of the action indicates a local effect. (Medical News, May 19, 1894, p. 550.)

PROSTATIC ENLARGEMENT.—Treatment by simultaneous ligature of both Internal Iliac Arteries, Bier's method.

Dr. Willy Meyer reports a case in which he adopted Bier's method with success, though amputation of part of the foot became necessary for gangrene. The gangrene appears to have resulted from ligature of the external iliac (left) for hemorrhage, due to ulceration of its coats subsequent to the primary operation. An article giving a *résumé* of Bier's experience with ligation of the internal iliacs for reduction of hypertrophy of the prostate appeared in No. 32 of the *Wiener klinische Wachenschrift*, August 10, 1893. Bier had then done the operation three times—once by the transperitoneal method (Gibson), twice by the extraperitoneal method (Valentine Mott). Much difficulty was experienced during the first operation on account of a troublesome narcosis, it being necessary at last, in spite of Trendelenburg's posture, to take out a large portion of the small intestine in order to reach the arteries. Considerable time was thus consumed. The patient died of septic peritonitis on the third day after the operation. The latter two patients, 65 and 69 years old, recovered nicely. Two of the three had been able within the first twenty-four hours following the operation to pass urine voluntarily in a small stream ; the third began to pass it on the third day after the ligation of the arteries, while before they had been unable to pass a drop. In one of the cases intermittent retention occurred again on the third day after the operation, lasting nine days. Then the urine was again voided spontaneously. In the two cases which survived there was afterwards progressive improvement. One of the patients stated, four months later, that he could urinate just as well and as easily as ever before. No trouble had resulted from the ligation as such. (Dr. Willy Meyer, Annals of Surgery, July, 1894, p. 45.)

PROSTATITIS.—Ichthyol Suppositories in.

Dr. A. Freudenberg has made use of this method of treatment in about 30 to 40 cases since March, 1891. It is most useful in subacute and chronic cases, relieving the pain upon defecation, pressure, and other subjective symptoms, as well as the

enlargement and hardening of the gland. The ammonium preparation was employed in dose from seven to fifteen grains in cacao butter, thirty to forty-five grains as a rectal suppository, two being used each day. No observations upon prostatic hypertrophy are recorded.—*Centralblat für klinische Medicin*, 1893, No. 26. (The American Journal of the Medical Sciences, August, 1894, p. 219.)

PROTEIDS IN THE URINE IN CASES OF ALBUMINURIA.

From numerous observations Dr. F. D. Boyd reaches the following conclusions :—(1) That in albuminuria both the proteids of the blood and serum are present as a rule, but there are certain exceptional cases where this does not hold ; (2) that we cannot diagnose the form of kidney lesion from the proportions of the two proteids in the urine ; (3) that the proportions of serum albumin and globulin may vary widely in albuminous urine ; (4) that even in amyloid degeneration, where the patient is very emaciated, the globulin may not be in excess ; (5) that in the albuminuria of pregnancy both serum albumin and globulin are present, the tendency being for the globulin to be in a proportionally large amount ; (6) that in the albuminuria of heart disease, where there is no chronic kidney disease, the globulin is usually in larger proportion than is commonly found in chronic interstitial nephritis ; (7) that in acute nephritis, where there is no hæmaturia, the serum albumin and globulin are, as a rule, about equal in proportion ; but when there is blood in the urine the globulin is proportionally large in amount. (Edinburgh Medical Journal, May, 1894, p. 996.)

PRURITUS VULVÆ.

Schultze (*Centralblatt für Gynäkologie*, 1894, No. 12) calls attention to the fact that pruritus is often directly due to the condition of the endometrium. He has repeatedly demonstrated the fact that the irritation of the vulva may be aggravated by simply passing a sound into the uterus ; in fact, sometimes there seems to be a definite limited area of the endometrium, irritation of which gives rise to reflex pruritus. When pruritus and purulent endometritis co-exist, the causal relation between the two is sufficiently clear, but it can be demonstrated even when the latter condition is absent. In every obscure case the presence of endometritis should be sought for. According to the writer's observation the majority of patients with obstinate pruritus do not masturbate, and *vice versa*. (The American Journal of the Medical Sciences, June, 1894, p. 730.)

RENAL ALBUMINURIA.—Its Frequency apart from Bright's Disease, Fever, &c.

(1) Renal albuminuria, as proved by the presence of both albumin and casts, is much more common in adults quite apart from Bright's disease or any obvious source of renal irritation than is generally supposed; (2) the frequency increases steadily and progressively with advancing age; (3) this increase with age suggests the explanation that the albuminuria is often an indication of senile degeneration; (4) though it cannot be regarded as yet as absolutely proved, it is highly probable that faint traces of albumin and hyaline and finely granular casts of small diameter are often, especially in those past 50 years of age, of little or no practical importance. (Dr. F. C. Shattuck, Boston Medical and Surgical Journal, June 21, 1894, p. 615.)

[See also article "On the Frequency of Renal Albuminuria apart from Bright's Disease," by Dr. F. C. Shattuck, at p. 228 of this volume of the *Retrospect.*]

STRANGULATION OF TESTIS BY ROTATION.

Lauenstein draws the following conclusions:—(1) Up to date at least 11 cases of the disease designated by Nicoladoni as torsion of the spermatic cord have been reported. A number of such cases have probably been reported as "strangulation of the testicle" and "acute periorchitis." (2) The explanation of the occurrence of hemorrhagic infarction of the testicle due to torsion of the pedicle was first made by Miflet under the direction of Volkmann. (3) The predisposing cause of the accident is the freedom of the testicle as it hangs like a fruit from its stem. This torsion may occur not only in the inguinal testicle, but also in the case of the testicle the descent of which into the scrotum has been delayed. (4) The conditions which favour the accident are flat form of the testicle, the inversio testis horizontalis (Kocher), division of the cord into two sections, broad arrangement of the parts of the cord, or abnormal shortness of the cord. (5) It is a question whether the exciting cause lies in the ordinary movements of the body, or is to be assigned to some sudden and abrupt jarring. (6) The fact that in five cases of right-sided inguinal testicle a left spiral twisting of the cord took place is similar to the observation of Küstner, that right-sided ovarian tumours tend to undergo a left spiral torsion of the pedicle, and ovarian tumours of the left side tend to undergo a right spiral torsion. (7) The diagnosis of torsion of the testicle on account of the suddenness of the attack, and the possible co-existence of hernia of the intestine or omentum may be confused with that of the latter condition. Abscess of the appendix vermiformis is also to be borne in mind. (8) The strangulated inguinal testicle must be removed. The scrotal

testicle may be left if the circulation is not too greatly disturbed. (9) Because of the fact that this disease is not common, and is, moreover, rather difficult of diagnosis, when cases of this sort are met they should be studied with especial care, with the view of throwing more light upon this subject. (Dr. Warbasse's article, Annals of Surgery, July, 1894, p. 107.)

SURGICAL KIDNEY.

Dr. Keyes appends the following conclusions to an important paper on this subject:—(1) Healthy urine is sterile. (2) Purulent urine is always microbic. (3) Microbic infection takes place from within the body by a number of methods in the course of disease ; it is often brought about by instrumental manœuvres on the part of the surgeon. (4) A healthy organism and vigorous bladder may cope successfully with microbic invasion, and rid itself spontaneously, or with a little aid, of all damage arising therefrom—showing little or even no inflammatory response. (5) A suitable condition of the patient's soil is essential to the propagation and perpetuation of inflammatory phenomena upon the urinary tract—after microbic invasion. (6) This condition, intensified by traumatism and physical weakness, notably of the degenerative variety, is most intense when there is vesical distention with atony, and when the ureters are dilated and the kidneys involved in the changes incident to tension below—namely, atrophy and sclerosis above, with or without surface catarrh. (7) Under these circumstances surgical pyelonephritis is most likely to declare itself as a result of microbic infection from below (occasionally from above), in the course of suppurative disease or after operative interference. (8) Asepsis, antisepsis, and sterilization of urine are ends to be aimed at in genito-urinary surgery—but, like all other greatest goods, not yet attained in perfection. Much, however, can be done by local means in a prophylactic and curative way, little by internal medication, and possibly as much or more than by any other means by flushing the urinary passages with natural mineral waters. (Dr. Keyes, The American Journal of the Medical Sciences, June, 1894, p. 631.)

[See also article "On the Prevention and Treatment of Surgical Nephritis," by Dr. Keyes, at p. 335 of this volume of the *Retrospect.*]

URÆMIA.

The following conclusions are appended to a clinical and experimental study of Uræmia by Dr. W. E. Hughes and Dr. W. S. Carter, of the University of Pennsylvania :— (1) Uræmia is an intoxication by a poison circulating in the blood. (2) This poison is present in serous effusions as well as in the blood. (3) It is probable that in addition to the pathogenic

poison of uræmia there are, under certain conditions, other secondary ones active in its production. (4) The poison producing uræmia will also produce nephritis and a fatty degeneration of the retina, the cause of the eye symptoms in Bright's disease. (5) This poison is probably some albuminous substance. It is affected by heat, and is only with difficulty dialyzable. (6) It is probable, but not certain, that this poison is not constantly circulating in the blood, but that under exceptional conditions it becomes developed. (7) It is possible to have uræmia without any previously existing lesion in the kidneys. (The American Journal of the Medical Sciences, September, 1894, p. 281.)

[See also article "On the Treatment of Uræmia," at p. 231 of this volume of the *Retrospect.*]

Uræmia.—Transitory Blindness in.

Max Rothmann (*Berl. klin. Woch.*, July 23, 1894) remarks that acute blindness is one of the most uncommon symptoms of uræmia. In rare cases it may be the only symptom. It is mostly bilateral. The ophthalmoscopic examination is usually negative. Sometimes the arteries appear narrow, or albuminuric retinitis is present. If it lasts long optic atrophy may ensue. If the pupil reaction to light remains, the prognosis is good. The localisation of the disease is disputed. Temporary œdema of the papilla, a lesion between the corpora quadrigemina and the locality where the perception of light is affected, passing œdema in the visual corticle centres are among the views advanced. The author refers to the identical sudden loss of sight after hemorrhage, in which changes have been found in the optic nerve. He then records a case in which granular kidneys were found after death, and in which the patient was seized a couple of months previously with sudden and temporary blindness affecting first the left and then the right eye. It subsequently recurred in the left eye. Death was due to phthisis. The fibres of the optic nerves were healthy, but the sheath was thickened, as well as the vessels in the nerves. Although the case is not absolutely typical, the author thinks the amaurosis of uræmic origin. In the right eye the light reflex disappeared, and returned as the sight improved. Here the blindness was due to a temporary œdema of the optic sheath, without permanent change in the nerve fibres. Thus the pupil reaction can be maintained, though the lesion is peripheral. The author concludes that (1) with severe nephritis blindness may occur with or without other uræmic symptoms, and is due to œdema of the optic sheath; (2) the light reaction may be preserved, lessened, or abolished, without making this compression theory impossible; (3) the prognosis of the lost reflex is not absolutely

bad ; and (4) after the return of sight the nerve fibres may be intact, or degenerate only in the periphery. (Epitome of the British Medical Journal, September 8, 1894, p. 37.)

VAGINISMUS.—Local Treatment.

The local treatment of vaginismus may be successfully carried into effect, in a large proportion of cases, by such forcible dilatation of the vulvo-vaginal passage as may effectually and permanently overcome its abnormal contractility and at the same time produce thorough stretching of the affected nerve fibrillæ. For this purpose, in the first place, the patient previously prepared by the customary syringing, and other antiseptic precautions for a vaginal operation, and her bowels and bladder evacuated, should be placed in the ordinary left lateral semi-prone position on a suitable couch, and put under anæsthetic influence. Secondly, a large-sized bi-valve vaginal speculum is to be introduced and the blades then expanded to the fullest extent. Thirdly, a tampon of antiseptic cotton, or wood wool, saturated in boracic glycerine should be passed in through the speculum so as to pull its calibre from the vulva to the roof of the vaginal vault. Fourthly, the speculum still widely expanded is to be forcibly withdrawn, in order, as before observed, to overcome the contractility of the parts and thoroughly stretch, or even slightly rupture the affected nerve fibres. In so doing, some little abrasion of the vaginal walls may probably be occasioned, but any hemorrhage therefrom will be sufficiently controlled by the tampon, on which counter-pressure is to be made during removal of the speculum so as to leave the included club behind in the vagina, where it must be left for at least twenty-four hours, and then replaced by other tampons to be retained for a similar period for the next week, to maintain the patency of the passage. On each occasion after the removal of these tampons the vagina must be thoroughly washed out with some antiseptic injection. Finally, should any trace of vaginismus or spasmodic contraction still remain at the end of a week or so, then the same procedure may be again once more repeated, after which the original passage will have generally regained its normal sensibility and capacity. In some exceptional instances, that curative result may not be thus obtainable, and in such cases it may become necessary to resort to one or other of the various methods, such as the excision of any specially hyperæsthetic tissues in the vicinity of the hymen or its remains, &c., or else to some of the recent modifications of Sim's or Emmet's operations for vaginismus. These procedures will, however, as I believe, comparatively seldom be required by gynæcologists who adopt the simpler and generally effectual plan of treatment now described. (Dr. More Madden, The Medical Press and Circular, September 5, 1894, p. 228.)

VESICO-VAGINAL FISTULA.—Treatment.

Mackenrodt (*Centralblatt für Gynäkologie*, 1894, No. 8) describes his method of dealing with large fistulæ as follows: The anterior vaginal wall is put on the stretch by traction on the portio and the urethro-vaginal septum below the fistula, any cicatricial bands being divided. The bladder is also dissected off from the uterus as high as possible. A median incision is made through the vaginal mucosa, between these two points, and in a line with the middle of the fistula; the edges of the latter are then split and the anterior vaginal wall is dissected off from the bladder as in vaginal fixation of the uterus. The edge of the fistula is denuded, and the opening in the bladder is closed with sutures of silkworm gut; if necessary a second layer can be introduced in order to fold-in the redundant bladder wall. The corresponding edges of the vaginal opening are then denuded, the fundus uteri is drawn downward as in vaginal fixation, and is united to the flaps of the vaginal wound, thus blocking the opening. The after-treatment consists simply in vaginal douches, the patient being allowed to pass her urine if she can. The sutures in the bladder come away of themselves without causing any irritation: the vaginal wound heals rapidly by granulation. The same method is followed in the case of utero-vesico-vaginal fistulæ, the opening in the uterus being closed by catgut sutures after the bladder has been dissected away. The writer proposes this operation as a substitute for the more severe abdominal method of closing complicated fistulæ, or for colpocleisis, and believes that with it no case should be regarded as incurable. (The American Journal of the Medical Sciences, May, 1894, p. 602.)

GENERAL SURGERY, AND AFFECTIONS OF THE BONES, JOINTS, &c.

CHLOROFORM ADMINISTRATION, THE HYDERABAD METHOD OF.

In the course of a lecture and demonstration at the London Hospital, Surgeon-Lieutenant-Colonel Lawrie, speaking as a member of the Hyderabad Chloroform Commission, said:—Our creed about chloroform is a very simple one. The anæsthetic is administered by inhalation, and during the inhalation there are two things to avoid—(1) the inhalation or intake of an over-dose, and (2) interference with the breathing. In order to avoid these evils we were taught by Syme, as a matter of common sense, to take the respiration as our guide. In the second place, Syme, following Simpson, quickly discovered that

chloroform does not cause failure of the heart prior to failure of respiration; he, therefore, taught us that we were not to be guided by the circulation but entirely by the respiration. His words were: "You never see anybody here with his finger on the pulse when chloroform is given." Syme's third principle was never to push chloroform beyond the point when anæsthesia is complete, the signs of complete anæsthesia being stertorous breathing or abolition of the corneal reflex. Having always acted on Syme's principles, we can point to a continuous series of cases of chloroform administration, extending from the year 1847 until the present day, without a death. In this respect I am by no means singular. Hundreds of Syme's pupils, and, in a smaller way, hundreds of my own pupils can tell a similar tale. You may say that this merely shows the possibility of giving chloroform in a large number of cases without a fatality. We say that it proves the value and correctness of Syme's principles of chloroform administration, and that it shows clinically—by which I mean, up to the limit of anæsthesia—that chloroform has no direct action on the heart. Briefly, the experiments of the Hyderabad Commission show (*a*) that the fall of blood-pressure under chloroform, which had, chiefly on the authority of the Glasgow Committee, been up to that time relied upon as the physiological proof *par excellence* of danger to the heart, is in itself harmless and cannot, therefore, be due to cardiac failure; and (*b*) that chloroform anæsthesia alone is absolutely free from risk. The anæsthetic does not ever, under any circumstances, act upon the heart directly. The proof is given by Drs. Gaskell and Shore's cross-circulation experiments, which were carried out in Hyderabad in 1892. These experiments proved finally—and you can see the proof for yourselves in the tracings—that when chloroform is sent to the heart alone it produces no effect whatsoever—no anæsthesia, no fall of the blood-pressure, and no respiratory failure. On the other hand, when it is sent to the brain, and not to the heart, it produces its usual well-known effects—namely, lowering of the blood-pressure with, first, anæsthesia, then stoppage of the respiration, and then death by failure and arrest of the heart's action. In short, the Hyderabad cross-circulation experiments demonstrate incontestably that the fall of blood-pressure, due to the direct action of chloroform, is caused by vaso-motor narcosis and is not due to weakening of the heart. (The Lancet, June 2, 1894, p. 1395.)

CINNAMON IN THE TREATMENT OF CANCER.

Mr. Hulke appends the following remarks to the records of five cases of cancer treated by the internal administration of oil of cinnamon:—It has fallen to me to make trial of various remedial

measures suggested here and abroad for the relief and cure of sufferers from cancer in the course of some twenty-five years or thereabouts. Of such "pharmaka" I may mention "Fell's paste" (the active ingredient in which is zinc chloride coloured with red snake-root), slow injection of acetic acid through a capillary tube, sundry escharotic pastes and powders having arsenic as their essential component, condurango, and more recently Chian turpentine; also besides these the dietetic treatment laid down by Beneke, without and with the association of arsenic administered internally recommended by Esmarch. Several years ago the conjecture that cancer might have a parasitic origin induced me to try cinnamon, being influenced in the selection of this by the common ascription of germicidal properties to aromatic oils, and by my recollection that my old teacher, Dr. A. Farre, held strongly that cinnamon had something like a specific or particular influence over some uterine functions, a belief which led him to prescribe large doses of the tincture in certain cases of dysmenorrhœa. I gave cinnamon a long trial, chiefly in cases of cancer of the uterus, but also in that of other organs. The result was wholly negative. Dr. Ross's letter in a recent number of *The Lancet* imposed on me the obligation to try this drug again. The result is again negative, particularly with regard to relief of pain, for which Dr. Ross recommends it. (The Lancet, Sept. 15, 1894, p. 635.)

ENLARGED CERVICAL GLANDS.—New Method of Operating for.

Dollinger (*Centralbl. f. Chir.*, No. 36, 1894) describes an operation for the subcutaneous extirpation of tuberculous lymph glands in the neck and submaxillary region. The posterior half of the scalp having been shaved, and the whole of the scalp and the skin of the affected side of the neck carefully disinfected, an incision is made commencing behind the external ear, and carried in a curved line with the convexity backwards and downwards towards the middle line of the neck behind. The skin and superficial fascia are divided, and the anterior and lower flap is undermined by finger and elevator until the enlarged glands are reached; these, if they have not broken down or contracted firm adhesions with surrounding soft parts, may now be readily detached by the elevator, and drawn through the wound. The skin forming the lower flap is so yielding, especially in women and children, that it is possible by this operation, the author asserts, to reach glands situated near the chin, and even those in the supra-clavicular region. The wound, when made under strict antiseptic precautions, heals quickly, and the scar is hidden by the new growth of hair. (Epitome of the British Medical Journal, October 6, 1894, p. 53.)

FRACTURE OF DISLOCATED HUMERUS.—Treatment by a New Method.

Dr. Charles McBurney, of New York, records a case of dislocation of the humerus, complicated by fracture at or near the surgical neck, in which the following operation was done with complete success. The paper also contains an instructive discussion of the methods hitherto devised for the treatment of this injury:—The operation was done on July 1, 1893, two weeks after the original injury, in the presence of Dr. W. M. Polk, and with the assistance of Drs. F. W. Murray and H. W. Taylor. In the few days intervening after my first examination of the patient I had made a suitable drill and also a blunt right-angled hook, the blunt end of which corresponded exactly to the size of the drill. An incision about 1½ inches long was now made, being about one inch below the acromion. This incision was carried through the deltoid muscle to the outer surface of the upper fragment. With the drill a hole was then made which passed completely through the very obliquely bevelled bone. The hook was inserted as far as it would go. Dr. Murray then slowly carried the forearm and upper arm outward and nearly to a right angle with the body, and, with the powerful hook in the right hand and the fingers of the left hand on the head of the humerus, I made vigorous traction in the same direction. The effort required was very considerable, but no change in direction was needed, and reduction was accomplished at the first attempt. Examination through the wound then revealed some interesting features. The absence of crepitus had been noted before, and was now explained. While the dislocation existed the upper fragment projected laterally at a far greater angle than could be well appreciated through the thick deltoid. Consequently the fragments were never in apposition, and to have brought the fracture-surfaces together it would have been necessary to carry the elbow away from the body to a distance of from eight to ten inches. Before doing the operation I had expected to suture the fragments together with heavy catgut, but after the reduction of the dislocation was accomplished I found the apposition of the fragments to be so very perfect that I made use of only two deep catgut sutures, passed through the soft parts immediately overlying the bone. The arm could now be brought close against the side of the thorax without displacing the fragments. The wound was closed throughout with catgut, without drainage, a sterile dressing was applied, and the whole shoulder, upper arm, and forearm enveloped in a plaster-of-paris case. Not the slightest interruption to health followed the operation, and after a week in bed the patient was able to walk about, using a sling to support the heavy splint. On the tenth day the splint was removed and the wound examined. Primary

union had occurred throughout, and a fresh plaster splint was applied. On the twenty-fourth day the second splint was removed. Quite firm union of the fragments was noted, and moderate passive movements of the shoulder-joint were made. A much lighter splint was then applied, the forearm being left exposed, only supported by a sling. From the fifth week on passive movements of the shoulder and massage of this joint were made every day or two until the end of the seventh week, when the patient was able to return to his home in the country without apparatus of any kind, union of the fracture being completely firm, and voluntary movements of the shoulder-joint being satisfactory. Massage and passive motions were kept up, and the arm was very freely used. The patient was examined by me on October 26, and the functional results found to be perfect. The voluntary and passive movements of the right arm were as good as those of the left, and no atrophy of muscle existed, and no deformity at the point of fracture. At about the same time the patient was examined by Dr. W. M. Polk and Dr. L. A. Stimson, the former declaring the result to be absolutely perfect, the latter detecting a slight restraint when the right arm was carried upward and outward to the extreme point. The patient claims that his use of arm is as good as before the injury. (Annals of Surgery, April, 1894, p. 408.)

HIP JOINT CONGENITAL DISLOCATIONS.—Treatment.

The conclusions which the writer has formed from such experience upon the subject of congenital dislocation as has come to his knowledge are briefly as follows: (1) That the methods of treatment by traction, or by mechanical means, crutches, splints, recumbent traction, with or without tenotomy, do not effect a cure; (2) correction by means of forcible reduction without incision can be applicable in but few cases, and is not reliable; (3) that the method of operative reduction offers the best prospect of a cure. The method at present, however, involves risks, and is not certain in its results, but it is to be expected that further experience will give greater precision and more certain results, as no inherent difficulties lie in the way of operation; that the condition of the shortening of the muscles, the shortened condition of the anterior bands of the capsular ligament (described by Bigelow as the Y ligament), forms an important obstacle to complete reduction, and that these fibres should be thoroughly divided. It is also the opinion of the writer that these fibres can be more thoroughly divided by incising them in front than from behind. (Dr. E. H. Bradford, Boston, U.S.A., Annals of Surgery, August, 1894, p. 137.)

METATARSALGIA.—Non-operative Treatment.

At the American Neurological Association, May, 1894, Dr. V. P. Gibney, of New York, read a paper entitled "Non-operative Treatment of Metatarsalgia." He offered as a substitute for excision of the distal end of the fourth metatarsal bone, or the branch of the peroneal nerve, a boot constructed on a Spanish last, with a heel a combination of an English and a French heel. The boot thus built transfers the weight from the ball of the foot to the plantar region just back of the ball of the foot, and to the heel and that portion of the shank just anterior to the heel. The chief point insisted on was a snug fit around the instep shank and a rather loose toe portion. A number of successful cases were reported. (Medical News, July 21, 1894, p. 79.)

NERVE-SUTURE.

Dr. De Forest Willard appends the following conclusions to an important paper on this subject:—(1) Immediate suturing of a divided nerve should never be neglected, as the result is eminently successful as regards restoration both of sensation and of motion. (2) Clean end-to-end suture should be secured if possible. In wounds inflicted by a sharp instrument this is easily attained; in torn wounds it is wiser not to remove more of the nerve than is imperative, as a nerve continuously stretched unites less readily than one which lies loosely. Whenever a portion is necessarily sacrificed better union will be secured by clearing the nerve for a considerable distance, stretching it thoroughly so as to obtain end-to-end suture if possible, and then stitching. When it is impossible to join the ends other material may be grafted into the gap, or the nerve may be spliced by flaps cut from its own substance. (3) The best suturing material is fine chromicised catgut inserted by means of a small, round needle directly through the sheath and body of the nerve. Two sutures are usually advisable, crossing each other at right angles. (4) Secondary suturing offers good hope of success, and should be attempted even if years have elapsed since the accident. Repeated operations may ultimately succeed if the nerve is thoroughly cleared, stretched, and brought together. (5) When the loss of nerve substance has been large, a nerve graft, or a section taken preferably from a freshly amputated limb or from an animal, should be inserted in the gap. This usually gives better results than the splicing operation of splitting the nerve and turning the flaps into the gap. (6) Decalcified bone tube, which has been employed for guiding the ends toward each other, is so rapidly absorbed that it is of but little service. (7) Restoration of function often takes place many months after the operation. (8) My own

experiments agree with those of other operators, and prove that the distal portion of a severed nerve rapidly degenerates, as does also an interposed graft; yet that transmission of function is possible, and that subsequent regeneration may take place as regards both sensation and motion. (9) During the healing process the part should be placed absolutely at rest, and the nerve slightly relaxed if possible. (Medical News, October 6, 1894, p. 378.)

SPINA BIFIDA OCCULTA.

The rare affection known as spina bifida occulta was described by Virchow, in 1875, as a cleft of the vertebral canal, which had not gone on to the formation of a sac, but was limited to cleft of the spinous processes with separation of the laminæ, and since that time several cases have been reported by Fischer, Sonnenburg, Lücke, Recklinghausen, Brunner, Bergmann, Bland Sutton, Joachimsthal, and others, so that the condition is now well recognised clinically. It is common in these cases to find a marked hairy growth over the affected region, together with some paralysis and anæsthesia, of the cauda equina type. Trophic lesions especially appear to be common, perforating ulcer being described by Brunner, Recklinghausen, and Bland Sutton; and chronic osteitis of the metatarsus being present in Fischer's case. In Lücke's case, as in Joachimstal's, there was luxation of the hip, which the former regarded as being secondary to paralysis of the gluteal muscles. The pathology appears to consist in the coexistence of a vertebral cleft with a hypertrophic condition of the adjacent soft parts, giving rise to pressure upon the cauda equina. Thus Sonnenburg found a deposit of fat beneath the area of hypertrichosis, and Recklinghausen found the cord surrounded and compressed by a myofibrolipoma. In the case which I have just described to you it is probable that the lenticular swelling was of similar nature, and the hypertrichosis usually met with also may be regarded as evidence of the local tendency to hypertrophy. It remains to be added that there are also recorded examples of sacro-lumbar hypertrichosis in which no other symptoms of spina bifida occulta were present, but that in three such cases of Recklinghausen's a post-mortem examination revealed a slight fissure of the subjacent vertebral arches. In Fischer's case, again, a patch of hypertrichosis in the cervical region accompanied the typical sacro-lumbar spina bifida occulta, but no cleft was detected by palpation in the upper area. (Mr. William Thorburn, British Medical Journal, June 30, 1894, p. 1403.)

[See also Mr. Wm. Thorburn's article "On Fractures and Dislocations of the Spine and their Treatment," at p. 290.]

SPRAINS.—Treatment.

With the exception of such support as is necessary to give time for the repair of the few stretched ligamentous fibres, treatment should be directed at first to check the effusion and extravasation. This can be done in several ways :—(1) By compression carried on for a short time ; and (2) by such means as would improve the circulation in the periarticular tissues, namely, the application of heat and cold, massage, and motion of the joint, which, however, should be restricted in character so as to prevent any excess of motion or stretching of the strained ligaments. The length of time for which it is necessary to protect from extreme motion will vary in any individual case according to the amount of reparative power, the amount of violence, and the age. But there would seem to be no justification for the popular opinion that a sprain is worse than a break, an opinion which would appear to be based upon the over-cautious treatment following such injuries, which, by interfering with the proper circulation of the part and guarded motion, increases the sensitiveness and produces a condition which, if unchecked, may develop a disabled joint, which is more tedious than an ordinary fracture. This condition is what is occasionally seen in joints which are stiffened simply from disuse, for, as is well known, in limbs which are held stiff in the treatment of fractures, there is more pain and sensitiveness in first attempting to move the uninjured joints which have been fixed in the treatment of the fracture than in the fractured part itself. The condition following a sprain is somewhat analogous to that seen in the soft parts near the site of fractures, namely, the circulation is interfered with, there is a certain amount of soreness on motion, and the muscles and ligaments are strained. As in the condition which follows the treatment of fractures, a great deal of stiffness of the fixed joints remains, and on any attempt to use the limbs there is pain. In the treatment of sprains we should not be influenced by what is termed by Verneuil, "anchylophobia." A sprain is not a fracture ; at most it is a tear or a rupture of some of the fibres of certain ligaments. This unites readily. If a tendo-Achilles can be safely moved in a fortnight after tenotomy, certainly a few ruptured or stretched ligamentous fibres should not be regarded as grounds for fixation for a longer time. The patient's pain is the natural check to an excess of motion. Fixation by apparatus is only necessary if demanded to stop pain for a short time after a severe sprain. In the early stages motion within the pain limit is harmless ; in the later stages of a sprain motion and use should be allowed up to the point of pain ; and in some instances in hypersensitive persons guarded and protracted motion, even beyond the point of pain, is indicated. Compression may be advisable for a short

time during what may be termed the period of effusion ; after that it becomes injurious. As means to improve the circulation, applications of heat and cold and rubbing are needed from the first, as well as during the whole treatment ; and use of the limb, when permissible through absence of pain, is a natural means of improving circulation and nutrition. The establishment of a precise diagnosis is of the most importance in sprains. If this is certain, the treatment is clear and simple. (Dr. Bradford, Boston, U.S.A., Boston Medical and Surgical Journal, August 16, 1894, p. 157.)

AFFECTIONS OF THE SKIN, &c.

ACANTHOSIS NIGRICANS.

At the Royal Medical and Chirurgical Society, on June 12, 1894, Mr. Malcolm Morris showed a case of acanthosis nigricans. The patient, a single woman, aged 35, was admitted into St. Mary's Hospital on February 15, 1894, suffering from widely disseminated discolouration of the skin, with diffuse warty growths in various parts. Previously to the appearance of the lesions her health had been good, but for more than a year before the onset of the disease menstruation had been very irregular, chiefly on the side of excess. In October, 1893, she noticed general bronzing of the skin over the upper part of the body, and crops of large, flattish warts came out on the hands, in the axillæ, on the umbilicus, and elsewhere. This was soon followed by the appearance of black patches in various situations, but mainly where wartiness was most marked. On admission she looked wasted and weak, but her temperature was normal, and there was no evidence of disease of any of the internal organs. The skin over nearly the whole of the body was rough, and for the most part distinctly bronzed, with the exception of the face, which was the seat of a permanent deep blush ; the natural folds were almost everywhere exaggerated, particularly in the neck and on the hands, where the skin felt like rough piled velvet. Round the neck there was a wide band of blackish discolouration, which spread downwards in front between the mammæ and some way on the abdomen ; similar patches were seen in the axillæ, the bends of the elbows, and the popliteal spaces. The axillæ were occupied by masses of warty growths deeply fissured here and there ; from the fissures there oozed an offensive discharge which seemed to have washed the staining material out of the middle part of the papillomatous mass. A few small warts were scattered about the face and the lower part of the forearm on the flexor aspect. The umbilicus was the seat of a button-like wart of considerable size, surrounded

by a black zone ; from this wart an offensive discharge exuded. A few warts were scattered about on the thighs, and there were general roughening and thickening of the skin, particularly on the soles of the feet, with bronzing about the knees and ankles, and yellow discolouration of the soles. There were masses of warts in each auditory meatus, and the patient was partly deaf in consequence. The mucous membrane of the lips, cheeks, palate, and gums was wrinkled, dry, and warty ; there were large warts with deep fissures between them on the tongue. A similar condition existed in the vagina. The throat was unaffected. The black stains were found to be caused by masses of tiny granules situated in the superficial layers of the epidermis ; on microscopic examination they were found to consist of dried epithelial scales, with no trace of pigment. The warty growths were papillomatous in structure. The condition gave rise to no subjective symptoms except an uncomfortable dryness of the lips and mouth. While the patient was under observation the black discolouration spread over the whole of the abdomen, and over the back as high as the middle of the scapula. There was some further development of warts on scalp and in the lumbar region. A thick growth of light-coloured hair took place on the face, and to a less extent on the chest and abdomen. Slight improvement was noticed in some parts, especially on the hands, knees, and feet. The patient's general condition continued fairly good, but she had become very nervous, and the knee-jerk was absent on both sides. The umbilical growth had been removed, and the warts in the ears had been treated with salicylic acid with some success. The case was submitted as an example of the disease called by Unna "acanthosis nigricans." Only two similar cases had been recorded (Pollitzer, Janovsky). Nothing was known as to the pathology of the condition. (The Lancet, June 16, 1894, p. 1502.)

ACNE.—Two Methods of Aborting Eruptions of.

The *Revue Internationale de Mêdecine et de Chirurgie Pratiques* for September 25 says that in cases of acne of the face it is often very important to arrest the development of the nodules as fast as they appear. For this purpose it is advantageous to paint each lesion with a mixture of one part of ichthyol and three parts of water, which is to be allowed to dry on the skin, or with a little pure carbolic acid, previously liquefied by heat, and afterward cover the part with a layer of flexible collodion. The first method, recommended by Dr. W. Jamieson, of Edinburgh, is especially applicable in eruptions of acne which are still papular; while the second, recommended by Dr. Smith, another English dermatologist, should be preferred in cases of

pustular eruptions. (New York Medical Journal, October 20, 1894, p. 512.)

COMPOUND TINCTURE OF COAL TAR.

Dr. Duhring sums up the result of some investigations as to the methods of preparation of this compound as follows :—(1) That the best tincture of coal tar is made with the aid of tincture of quillaia. (2) That the strength of the tincture of quillaia should be 1:4, with 95 per cent. alcohol. (3) That the coal tar (1 part) should be digested with the tincture of quillaia (6 parts), with frequent agitation, for not less than eight days, and preferably for a longer period, and finally filtered. (4) The resultant product is a brown-black, clear tincture, which, upon the addition of water, forms a cleanly yellowish emulsion, the colour and certain other characters varying with the kind of coal tar employed. (5) The tincture is stimulating, and is prescribed usually largely diluted with from 10 to 60 parts of water as a wash, and is useful where tar is indicated, as in certain forms of eczema, psoriasis, pruritus, and in other inflammatory diseases of the skin. It is often more useful when employed weak than strong. (6) This preparation, which may be designated as "compound tincture of coal tar," takes the place of several similarly composed proprietary preparations known as "liquor carbonis detergens" and "coal tar saponiné." (The American Journal of the Medical Sciences, May, 1894, p. 543.)

DERMOGRAPHISMUS.

Under the term "dermographismus" Ehrmann (*Allgemeine Wiener Medicinische Zeitung*) describes a peculiar condition of the skin occurring under various circumstances, and depending for its appearance upon mechanical irritation. He distinguishes three degrees of this condition. In the first there appears one after another contraction of the cutaneous muscular tissue, with anæmia of the parts affected, then hyperæmia, and finally transudation ; in the second the muscular contraction is very slight, the anæmia is not so marked, and there is hyperæmia of the superficial layers of the skin only ; and in the third there is only transitory reddening of the skin. But the more common form of case is that in which, on the portion of skin affected, small raised patches of œdema appear around the roots of the hair, so that on stroking the skin with some blunt body, or even by the pressure of the clothes, or a button, &c., only an isolated group of white papules appear, which cause an irritation of the skin, and consequently soon lose their characteristic appearance, owing to being scratched by the patient. In such cases cutaneous pruritus is diagnosed as "pruritus nervosus." In some cases recorded the appearance closely resembles that of

lichen ruber planus. Ehrmann draws a distinct difference between dermographismus and urticaria. The latter is caused by the action of some toxic substance, this being derived from some affection of the skin or of the digestive organs, or some pathological products are formed (auto-intoxication); but he admits that in some cases of urticaria, in which the nervous system is affected, that disease and dermographismus may exist together. This condition has been observed after mental excitement, such as fright, or in cases of neurasthenia and hysteria. He considers the influence of the nervous system as sufficient to produce dermographismus, and that the presence of a toxic substance is not necessary. Examination of the urine demonstrated the presence of indican in only one out of fourteen cases. (The Lancet, June 30, 1894, p. 1634.)

DISSEMINATED GANGRENE OF THE SKIN OF HYSTERICAL ORIGIN.

Disseminated gangrene of the skin is a dermatological rarity. Bayet, of Brussels, adds another to the dozen or so scattered throughout literature. Some of these have been ranged among the cases of gangrenous zoster, others have been regarded as examples of pemphigus traumaticus, while others, again, have been described under the name of urticaria gangrænosa. (He omits the instances of erythema gangrænosum recorded by Fox and ourselves.) In Bayet's case, as in one related by Joseph, there was an initial traumatism, a superficial burn caused by sulphuric acid. It affected a young man, aged 19. The succession of phenomena is thus described. First, a diffuse redness, much more extensive than the spot, which later underwent necrosis; then the appearance of small white shining points, isolated one from another, the earliest sign of epidermic changes. These soon altered; they remained shining, but assumed a brownish-yellow tint. Then the active hyperæmia, which had preceded the appearance of the patch, lessened and became limited. A hemorrhagic punctum formed in the situation of these altered epidermic areas. The process might now be arrested; more often it went further: the mortified spots became confluent, and ended by producing a continuous very superficial eschar of a yellow-ochre hue. The separation of this eschar disclosed a superficial ulceration, which was long in healing. In general it did not form a true scar; the epidermis was restored, but less resistant and pigmented. This epidermic regeneration was often interrupted by the formation of sero-sanguinolent blebs. When the process invaded the derma, and a true cicatrix ensued, this often took on the aspect of keloid. The complaint has some striking analogies with traumatic hysteria. Like this, it develops in

a situation the seat of a painful traumatism, and from thence spreads without any preference to a particular nerve territory. In this class of affections one must constantly be on the look-out for simulation. This is sometimes so subtle, and so little likely, that one is tempted to deny it, and this possibility was carefully borne in mind, and can be entirely excluded. The persons affected, except in one instance, have been young, and all were of a manifestly neuropathic temperament. They should be classed among the epidermolytic processes of a trophic nature, and alongside certain forms of pemphigus.—*Annales de Dermatologie et de Syphiligraphie*, Mai, 1894. (Edinburgh Medical Journal, November, 1894, p. 472.)

ECZEMA RUBRUM.—Treatment.

A swollen leg afflicted with *eczema rubrum* or *madidans* from knee to ankle: How ought it be treated? There are three ways in which it ought not to be treated, and these are as follows:—No ointment must be applied; no dry powder should be dusted over it; and a gelatine varnish is the most intolerable of all. More than thirty years ago I discovered that the ordinary black wash (*Lotio Hydrargyri nigra* of P.B.) is successful and curative in a remarkable degree. Dilute it with a twelfth part by measure of glycerine, and pour a small quantity into a soap-dish or saucer. Soak strips of linen rag in the lotion, taking up on each strip as much as possible of the black oxide of mercury. Lay them evenly upon the limb, each overlapping the next by about the eighth of an inch. Cover the whole diseased surface this way, and retain the dressing in its place by a thin cheesecloth bandage. Everything must be renewed twice a day, and the strips of linen ought to be soaked before removal in warm water. Nothing can answer better than this simple plan; but (so far as I know) no dermatologist of repute describes and sanctions it with the exception of Dr. Purdon, of Belfast. (Dr. Kent Spender, Medical Press and Circular, June 6, 1894, p. 588.)

GENITAL HERPES.—Treatment of.

The *Presse Médicale* for September 22 contains the following formulas which, according to M. Besnier, should be employed in this disease:—If the herpes is dry, frictions are made with an ointment containing 375 grains each of lead plaster and lanolin, and 75 grains of lard; or 300 grains each of lanolin and gray ointment, and 150 grains of olive oil. If the herpes is moist and weeping, the parts should be bathed with boric-acid water or a weak solution of carbolic acid and water, and afterwards dusted with the following powder: Starch, $3\frac{1}{4}$ oz.; bismuth subnitrate, 15 grains; tannic acid, 75 grains. (New York Medical Journal, October 20, 1894, p. 512.)

GLYCERINE JELLY.—Best form.

Dr. Menahem Hodara, of Constantinople, has instituted an investigation into the properties of glycerine jelly, as introduced by Pick and modified by Unna. It ought to melt at a low temperature, so as to render its employment as little painful for the patient as possible, since a hot, scalding jelly is disagreeable. On the other hand, it must set at a comparative high temperature, in order to become firm as soon as may be; and it should possess considerable contractility. The conclusion arrived at, after a large series of observations, is that for a soft jelly the following formula is best:—℞ Aquæ, 55·0; gelatinæ, 12·5; glycerini, 12·5; zinci oxidi, 20·0. This melts at 100° Fahr., and sets at 82°. If a hard, very contractile jelly is desired—R Aquæ, 50·0; gelatinæ, 15·0; glycerini, 10·0; zinci oxidi, 25·0. This melts at 102°, and sets at 87°. For poor people a cheap jelly, which sets at a lower temperature, is thus compounded—℞ Aquæ, 50·0; gelatinæ, 10·0; glycerini, 10·0; zinci oxidi, 30·0.—*Monatshefte für praktische Dermatologie*, March 1, 1894. (Dr. Jamieson's Periscope, Edinburgh Medical Journal, August, 1894, p. 185.)

LUPUS VULGARIS.—Treatment.

In a contribution on this subject, Schultz (*Archiv. für Dermatologie und Syphilis*, 1894, No. 1) recognises the fact that there are forms of lupus in which all methods of treatment are useless. In other cases, especially in those where there are isolated spots of disease, doubt can scarcely exist that the radical excision extended into healthy tissue is the only rational method of treatment. For the relatively frequent condition of extensive lupus ulceration of the skin of the face, the method of excision with skin-grafting by Thiersch's method is open to objections, and does not always give good results. In these cases he has obtained very favourable and lasting results by the following treatment:—The lesions are subjected to the most energetic scraping, after which the surface of the wound is thoroughly scarified, the scarification being carried a distance of about one centimetre on the surrounding healthy tissue in order to reach any outlying foci. After hemorrhage is arrested the raw surface is repeatedly brushed with a cold alcoholic solution of zinc chloride to which sufficient hydrochloric acid has been added to keep the mixture clear. Severe pain follows this application, lasting about six hours. It may be relieved by ice compresses, after which compresses of boric acid water are applied for one or two days. After this, pyrogallic vaseline (1 : 4), which is to be changed three times a day for four days, is applied. The local use of the boric water is again resumed for four days, when the pyrogallic ointment is applied as

before for four days. Then the boric water for three days, and then the pyrogallic application for three days again. Finally, healing may be encouraged under mercurial plaster, iodoform, or boric acid salve ; the author especially recommends the use of mercurial plaster, collodion, and a pressure bandage. Healing is said to be relatively quick, and to be followed by a good cosmetic effect. The basis of this method is the effort to reach the most minute points of disease which lie in the surrounding healthy tissue. It is impossible to guarantee against a recurrence, but for the best results the operation should be performed early. The danger of miliary tuberculosis is said to be no greater than would follow any other surgical proceeding, but whether the frequent application of the pyrogallic acid on an open wound is without danger is left an open question. Thus far the author has observed no ill-effects from its employment. In the present state of our knowledge the author claims the best results will follow the combination of energetic surgical and chemical treatment. (The American Journal of the Medical Sciences, April, 1894, p. 458.)

LUPUS.—Thiosinamin in.

Van Hoorn (*Weekblad van het Tydschrift van Geneeskunde*, June 16th) records his experience of the effect of thiosinamin in lupus. On the whole he confirms the statements of Hebra as to the effects of the drug. After injections of thiosinamin he observed redness and swelling of the affected parts. During the reaction the patients noticed a feeling of heat and tension. The day after the reaction abundant desquamation took place. The therapeutic effects were not constant. Patients in whom the affection was pretty severe showed much more marked improvement as long as the treatment was continued than those who were only slightly affected. The author's observations lead to the conclusion that thiosinamin is not to be recommended in cases in which the lupus is confined to a small space, and that, if possible, local treatment should be employed in all cases. Experiments as to the antiseptic effects of thiosinamin on skin parasites showed that the presence of small quantities in nutritive media could sterilise a culture ; that the addition of a few drops of a 10 per cent. solution would retard, or, in some cases, prevent development ; that, on the other hand, the immersion of a culture in a copious solution was, under certain conditions, ineffectual in killing the parasites in twenty-four hours. (Epitome of the British Medical Journal, July 7, 1894, p. 4.)

PEMPHIGUS.—Treatment.

This naturally divides itself into constitutional and local. Arsenic, once the panacea for all the ills to which the skin is heir, has been forced, step by step, to yield the palm, yet,

according to Mr. Jonathan Hutchinson, it still retains the distinction of being a specific for pemphigus. Dr. Crocker, in his admirable work, believes arsenic controls the skin lesions without affecting materially the course of the disease. In children he thinks it deserving the name ascribed to it by Mr. Hutchinson. In observing the treatment of pemphigus in various hospitals, as well as in the cases occurring in my own service, I have never observed the slightest benefit from arsenic. This forces me to the conclusion that as yet we have no trustworthy specific for pemphigus. With this in view the internal treatment should be conducted along the lines of general therapeutics. Food should be selected which is easily digested, although possessing the elements for proper nutrition, such as milk, eggs, &c. In pemphigus, above all diseases, tonics are indicated. Iron and arsenic, the latter in small tonic doses, and, in selected cases, cod-liver oil, will afford the best means at our command. Locally, the general hygienic environment should be looked after, fresh air and sunlight should never be forgotten, and, in an epidemic, isolation and disinfection, such as recommended for smallpox and erysipelas. Then, the blebs should be punctured and the sac flushed out with some bland disinfectant, such as the saturated solution of boric acid. This is followed by one of the many applications, which, above all, must be of a bland, soothing nature. Everyone who has been in the Allgemeines Krankenhaus, in Vienna, is familiar with the continuous water baths there used in the treatment of pemphigus. This undoubtedly constitutes an agreeable and efficient local treatment, but unfortunately the necessary appliances are not obtainable in many private houses nor even in most hospitals. An ordinary bath-tub may, however, be utilised for short periods, when a starch, bran, or alkaline bath may be used with great relief to the patient and some benefit to the skin. Of lotions, the glycerole of tannin has given the most marked benefit. It may be used in the strength of one part to three of distilled hamamelis or water. This strength may be increased to equal parts of the glycerole of tannin and camphor water. When the eruption is limited to small areas, the glycerole of the subacetate of lead and glycerin, of each one ounce, added to a pint of water, often acts admirably. When itching is present resorcin or carbolic acid are the best agents we possess for allaying it. These are used in the form of lotions, one drachm to four ounces of water. Sometimes cloths saturated with a bland oil prove most grateful to the patient. During convalescence, especially in the exfoliative form, some emollient, such as vaseline or the benzoated zinc ointment, is to be recommended. (Dr. W. T. Corlett, The American Journal of the Medical Sciences, April, 1894, p. 413.)

PRURITUS ANI, CHLORINATED LIME IN.

N. K. Berger (*Zemsky Vratch*, 1894, No. 13) inserts into the anus, about one inch deep, a pledget of cotton soaked in liquor calcis chlorinatæ, and left there until slight smarting occurs, when it is withdrawn, and the anus bathed with the same solution. The operation is to be repeated. Swelling of the parts or concomitant dermatitis, or eczema, are said to be cured by a few applications. (The American Journal of the Medical Sciences, September, 1894, p. 355.)

PSORIASIS.—Potassium Iodide in.

Graves was the first to suggest this method of treating psoriasis, claiming that the good effects of the drug did not begin to show themselves until four grammes daily were taken, while it required a daily dose of ten grammes to produce a rapid result. Haslund, in 1887, reported 50 cases of psoriasis treated by this method, of which 40 were completely cured, 4 greatly improved, while 6 remained uninfluenced. The duration of the treatment averaged seven weeks. Haslund concludes that we possess in the iodide of potash a drug which, given in large doses, can heal an attack of psoriasis, and that we know of no other internal remedy which works so rapidly as this. No data as to recurrences were at hand. Other observers have testified to the good results sometimes obtained from this treatment, but it has not, upon the whole, claimed very much recognition or favour.

Seifert (Archiv. f. Derm. u. Syph., xxvii. Bd., 3 Heft.) of Würzburg, publishes the results of his trial of this method, which was begun in 1888. Thirteen cases of psoriasis were thus treated, and the result accurately described. In two cases a favourable influence was noted, but the medicine had to be stopped on account of gastric pain in one case, and in the other case the patient left the hospital. In the first case the effect of chrysarobin seemed to be increased by the preceding treatment with the iodide. This was also true in seven other cases. In four cases, affecting three women and one man, a complete cure was produced. The amount of iodide given varied from 344 to 850 grammes. An improvement was first noticed in from four to five weeks. As has been reported by other observers, these enormous doses are astonishingly well borne. The mild form of iodine intoxication, such as increased secretion from the mucous membranes, were observed in almost all the cases. The writer comes to the conclusion that in these cases, when the iodide is given for a long time in increasing doses, there is almost always a noticeable effect on the circulation. In one case the pulse increased to 170, without corresponding increase in the temperature ; and here the pulse always rose when the dose of iodide was augmented. In six cases there was a rise in

temperature, which was to be directly attributed to the drug. These fever attacks may occur after small as well as after large doses. (Boston Medical and Surgical Journal, September 27, 1894, p. 315.)

SYCOSIS MENTI.—Treatment.

Sycosis menti, whether of the simple or the parasitic variety, I have always found to be quickly amenable to treatment. Ointments are slow and nasty; epilation is tedious and painful. Both forms of treatment, whether used separately or together, will as a rule have succeeded in disgusting the patient by the time he is beginning to derive some benefit from their employment. The following line of treatment I have invariably found to exert most influence in checking the progress of this disease and in totally eradicating it in parts where it has been already established. Having cropped the beard close to the skin, and having had the affected area thoroughly washed with superfatted soap and warm water, I apply a strip of lint well soaked in the acetum of the B.P. to the diseased part. This, having been carefully covered with a large piece of oiled silk or rubber protective, I allowed to remain on for twelve hours. On removing the vinegar dressing I substitute for it a similar piece of lint soaked this time in a solution of the perchloride of mercury (1 in 1200) and applied in precisely the same manner and for an identical period. These dressings I repeat every day for four days, at the end of which time I always find that the disease is dying away. Then I decrease the frequency of the applications to one or two a week, and at the end of the third week I find that there is no longer any necessity for further treatment, as the skin is quite sound and the dermatitis has become a thing of the past. (Mr. M. G. McElligott, The Lancet, October 27, 1894, p. 973.)

TAR IN PSORIASIS.

The external application of tar was recommended in all the older text-books as supreme for the common *psoriasis diffusa* of the outer surface of the limbs. The *unguentum picis liquidæ* irritates and inflames, even when largely diluted with lanolin or vaseline. Nor are matters any better if the tar ointment be mixed with benzoated lard, spermaceti, or any similar thing. The suitable diluent of tar—the one chemical medium which neutralises all its evil and augments all its power for good—is an alkaline earth like chalk. The chalk must not be merely rubbed down with the tar by the rough mechanism of a spatula, but a regular chalk ointment ought to be first made by strewing chalk into melted lard, and then stirring the two until they are thick and cold. If a finely levigated chalk be used, a bland

product is the result, which can be combined with *unguentum picis liquidæ* in any proportion that the case seems to demand. The emollient qualities of chalk (to which bismuth may be added) are beneficial in allaying pruritus, and in helping to arrest the neoplastic tendency of the scaly order of skin diseases. The percentage of tar ointment to chalk ointment may begin with one part in eight. After a bath at bed-time, the warm and moistened skin should be smeared with the ointment just described, and a vest put on over it. The objections to the smell of tar are conjectural and imaginary. (Dr. Kent Spender, Medical Press and Circular, June 6, 1894, p. 588.)

UNNA'S GUTTAPERCHA PLASTER MUSLIN.

Taenzer has contributed an excellent *résumé* of the indications for use of many of these now well-known plasters, and finds that they retain better than other substitutes their activity and adhesiveness even after the lapse of many years. Recently lanoline has been used instead of oleate of alumina, with distinct gain. The salicylic plaster muslin, besides its established efficacy in hyperkeratoses, warts, and infiltration in chronic eczema, has proved of value in dispersing the bands of scleroderma in an elderly female, and is also serviceable as a preparatory appliance in limited patches of psoriasis before using chrysarobin. A plaster muslin prepared with the last-named substance is cleanly and effective in localised patches of psoriasis or lichen planus, in neuro-syphilides and chronic eczema. It obviates the drawback which chrysarobin has of staining the linen, for over the piece can be painted a layer of zinc jelly. The mercury carbolic plaster muslin is the one most in request. One of its most valuable indications is in the treatment of syphilis. It replaces very satisfactorily inunction. A small piece can be put on the back or thigh of an infant, or in a strong adult as much as a third of a metre. In children it may need renewal in from eight to fourteen days; in adults it may remain two to four weeks. The plaster should be painted over with the zinc jelly, and when a fresh piece is applied a new locality should be selected. Taenzer has so treated sailors satisfactorily, and has seen stomatitis only in two children. More beneficial still is its use in local syphilitic manifestations, as in the chancre itself, in palmar and plantar lesions, and in condylomata. In some pustular affections it is eminently useful, as in sycosis, boils and carbuncles, and obstinate acne. Pyrogallol plaster muslin is said to be nearly a panacea in lupus erythematosus. The simple zinc oxide plaster muslin is quite unirritating, and is used in bedsores, in eczema of the nipple, and to localise various drugs to a restricted area. It is also employed in the construction of the dermal

mask.—*Monatshefte für praktische Dermatologie*, 1st April, 1894. (Dr. Jamieson's Periscope, Edinburgh Medical Journal, August, 1894, p. 186.)

URTICARIA.—Treatment.

Dr. Stephen Mackenzie says that the treatment of urticaria resolves itself into the following points:—(1) to discover the causes of the disease, and when discovered to remove them, if possible; and (2) to mitigate the effects. In searching for the causes we must not leave out of sight local irritations. The possibility of fleas, bugs, pediculi, &c., should be remembered; and irritating clothing must be replaced by soft and soothing garments next to the skin. As regards indirect irritants, in some cases these are clearly indicated as the attack promptly follows some unusual article of diet. It is too late to expel these from the stomach, but the peccant matters may still be in the intestinal canal, and we should therefore prevent further possibility of absorption by giving an efficient aperient. In many cases the particular cause cannot be discovered, so that the patient ought to be carefully instructed to observe his other idiosyncrasies in this respect. Some writers have pointed out that the articles of food are nearly all luxuries and not necessaries of diet. Acute cases need scarcely any treatment. A simple and bland diet, a stomachic, and a warm bath are all that is needed. In more obstinate cases we have to employ remedies which soothe the skin and lessen the excitability of its nerve plexuses. Of much service is a nightly bath lasting fifteen minutes, to which is added starch, or potassa sulphurata—two ounces to thirty gallons of water. After the bath the body should be rubbed with a lotion of carbolic acid and glycerine, or smeared with salicylic acid vaseline. In the severe form, known as *urticaria gigas*, Dr. Mackenzie has found the greatest benefit from swathing the affected parts with lint soaked in glycerine of lead (one ounce to twenty of water). Of internal remedies, antipyrin yields the greatest benefit; 20 to 30 grains may be given at bedtime. Atropine is sometimes very beneficial in doses of $\frac{1}{120}$ to $\frac{1}{100}$ of a grain. Colchicum has been found of service in cases which appear to be gouty or due to defective action of the kidney.—*British Journal of Dermatol.*, vol. vi., p. 75, No. 3, 1894. (The Practitioner, October, 1894, p. 299.

ULVITIS PRURIGINOSA.—Treatment.

After a few remarks on the relation of pruritus vulvæ to kraurosis vulvæ, Sänger proceeds to consider the etiology of the former affection. He divides the known causes into two groups—the endogenous and the exogenous. Amongst the

former he places—(1) Hæmato-chemical states, due to such diseases as icterus, chronic nephritis, and diabetes mellitus, and to the circulation in the blood of morphia, alcohol, and iodoform; (2) congestive conditions from overfilling of the pelvic veins from heart disease, retroflexion or tumours of the uterus, pregnancy, and hemorrhoids; (3) hæmatogenous skin affections, such as erythema, urticaria, herpes, and some forms of eczema. Amongst the exogenous causes are grouped—(1) The secretory-chemical, due to altered secretion of the vulvar glands, wetting of the parts with normal or altered urine, disordered secretions of the vulva, vagina, and uterus, and catarrhal or purulent discharges from the rectum; (2) the parasitic, due to such animal parasites as pediculi and thread-worms, or to such vegetable ones as leptothrix, oidium albicans, micrococci, gonococci, and streptococci; (3) the mechanical, such as masturbation; and (4) thermic causes, as in the pruritus æstivus or hiemalis. In most cases of vulvar pruritus the removal of the cause will be sufficient to remedy the condition, but in a small group of instances operative interference will be needed. Sänger records two cases in which, in addition to repairing the perineum, he practically removed the external genitals with most satisfactory results. He holds that the partial or complete extirpation of the vulva is a perfectly legitimate operation, which ought to be more often employed in chronic and not otherwise curable pruriginous vulvitis. The clitoris may also be removed in old women, but in young women it is best to be content with the partial operation.—*Centralblatt für Gynäkologie*, No. 7, 1894. (Edinburgh Medical Journal, July, 1894, p. 81.)

WARTS.—Treatment of.

The *Union Médicale* for September 20, says that when one has to deal with isolated warts they may be taken off with a scoop; a rather abundant hemorrhage follows, which may be arrested by compression or by cauterisation. When warts exist in large numbers this procedure is no longer applicable, particularly on account of the numerous cicatrices that follow its employment. In these cases the better way is to shrivel the excrescences with nitric acid. The tincture of thuja is also a very efficacious topical application. In cases of condyloma the small tumours may be dusted with powdered resorcin or salicylic acid; they may also be covered with a plaster containing these substances in the proportion of from 10 to 20 per cent. When the face is studded with a large number of these little warts, which often appear suddenly, Dr. Kaposi covers them with a piece of flannel spread with a layer of black soap. This is left on the warts for twenty-four hours, and adheres to the skin, gradually becoming detached with the warts. Another very good application is the

following mixture :—Flowers of sulphur, 20 parts ; glycerine, 50 parts ; pure concentrated acetic acid, 10 parts. The warts are painted with this mixture for several days without taking off the first layer, and gradually the excrescences dry up and become detached. For keratosis of the palms of the hands and the soles of the feet plasters of resorcin and salicylic acid are also efficacious. If the case is one of molluscum-like nævus it is better to employ electrolysis. The needle connected with the positive pole is plunged into the tumour, and a current is passed of from one to two milliampères for about thirty seconds. This operation is repeated at the end of eight and fifteen days. When the nævus is very large the galvano-cautery is preferable. (New York Medical Journal, October 20, 1894, p. 509.)

XANTHOMA.

Török, of Buda-Pesth, has made an exhaustive investigation into this question. Three species are recognised—Xanthoma vulgare, xanthoma elasticum, and xanthoma diabeticorum. The first form may be divided into two varieties :—(1) Localised xanthoma, which appears in one or more flat spots, or spots very little raised, more rarely as papules and tubercles affecting a single region, most frequently that of the eyelids ; (2) disseminated or multiple xanthoma, which may be flat, tuberculated, or tumiform, and extends over the whole surface of the body, though with certain points of election—the knees, elbows, palms, soles, fingers, neck, &c. A separation has been made between cases of xanthoma occurring before puberty and those manifesting themselves in adult life, but Török shows that there can be drawn up a continuous chain commencing in the first year and unbroken to the sixtieth. Jaundice and liver disease have been met with at all ages. Xanthoma of the eyelids may appear in childhood, and the complaint starting there may spread over the body. From an analysis of the histology, he concludes that xanthoma vulgare is made up of adipose tissue in a heterotopic situation, and in consequence of this it is composed of adipose cells interrupted in their progress to complete evolution. Where there is an increase of fibrous tissue the formation of this is additional to that of adipose. We cannot at present come nearer the cause of xanthoma than to assume that it arises through a proliferative hyperactivity of cells suited to undergo the fatty transformation. Xanthoma should not, he thinks, be regarded as a tumour, but as an excess of growth. The two cases of xanthoma elasticum he considers are not to be referred to a distinct variety, but are xanthoma vulgare planum in a condition of retrogression. Xanthoma diabeticorum he describes apart, as clinically and histologically an irritative process tending to degeneration. There are the redness of the

lesions at their commencement, the sudden evolution, the accompanying subjective sensations, the transformation which occurs in the centre, the fact that they have been seen to ulcerate or give rise to cicatrices, their disappearance in course of time. There are, he considers, inflammatory phenomena not seen in xanthoma vulgare. The lesions of xanthoma diabeticorum are caused locally by an irritative process ending in a granulo-fatty degeneration.—*Annales de Dermatologie et de Syphiligraphie*, November and December, 1893. (Edinburgh Medical Journal, April, 1894, p. 957.)

AFFECTIONS OF THE EYE, EAR, THROAT, AND NOSE.

DRY CATARRH OF THE MIDDLE EAR.—Intratympanic Injections in.

Most of the patients which I have treated by injections who have had the patience to come frequently, affirm most distinctly that the hearing has been much clearer after the injections for periods varying from a few days to as many months. I have tried most of the solutions recommended—nitrate of silver, sublimate (Wilde, Toynbee), chloral hydrate (Lucae), lactic acid, sulphate of copper (Roosa), iodide of potassium, liquid vaseline Delstanche), bicarbonate of soda and glycerine (Politzer). I now use only bicarbonate of soda, 3 per cent., with equal parts of glycerine and water; or paroleine, as prepared by Burroughs and Wellcome. The latter can be used pure or with a little bicarbonate of soda or iodoform. I have used these two remedies, I may say, hundreds of times, and never once seen any violent reaction. Before use the solutions are sterilised, and always applied warm. They are injected with an enlarged Pravaz's syringe (which is made of metal and glass, and can be sterilised), either direct through the Eustachian catheter, in which case ℥ij or ℥iij are injected, or preferably through Weber-Liel's intratympanic catheter, when ♏ xx or ♏ xxx are used. After the injection air is blown through the catheter. At first four to six injections are made at intervals of a few days, and then every few weeks or months, or whenever the patient thinks that the deafness or feeling of discomfort has increased. (Dr. Adolph Bronner, British Medical Journal, October 13, 1894, p. 805.)

SCHWARTZE'S OPERATION IN MASTOID DISEASE.

Opening the mastoid antrum according to the classical method advocated by Schwartze is now an operation known to all

surgeons. It yields the most excellent results in acute and subacute cases, but in chronic ear disease it only sometimes leads to an absolute cure, and this only if the communication with the antrum be kept up for a long time. Bergmann and Küster both recognised this, and proposed the removal of the upper and posterior walls of the meatus. It was reserved, however, for Stacke to introduce an operation which, I think, fulfils surgical principles to an extent not previously attained. Briefly, his *modus operandi* is as follows:—An elliptical incision is made a little behind the posterior and upper attachment of the auricle. The soft parts, including the periosteum, are detached forwards, and this process of detachment is carried into and round the meatus. The soft parts of the auditory canal are cut through as deep as possible, and the flap—including auricle, cartilaginous meatus, and skin and periosteum of the osseous canal—is drawn forwards. Either by direct or reflected light the remains of the membrane and its surroundings can be seen. The upper part of the tympanic ring is then chiselled away, and access is thus gained to the attic of the tympanum. After this the remains of the membrane, together with the malleus and incus, are removed. If the tympanic cavity alone is affected, this terminates the operation. If the mastoid also is involved, Stacke seems to open the antrum in the ordinary way, and afterwards take away also the posterior wall of the meatus. He then forms a flap from the soft parts which have been loosened from the meatus, with which he covers the bone. In a case which I recently operated on by this method I reached the antrum by removing the posterior and upper wall of the meatus. This did not necessitate any further incision, and the wound behind the ear was closed by sutures after the soft parts of the meatus had been slit longitudinally, as recommended by Stacke. After this the external auditory canal was dusted with a mixture of boracic acid and iodoform, and plugged with iodoform gauze. The success which has attended the method of operating just described has led me to reflect whether in most cases of intra-cranial mischief due to ear disease it would not be well to carry out Stacke's operation or some modification of it. In this way the hidden recesses of the middle ear can be explored, all dead bone can be removed, and in removing it we may hit upon an extra abscess, or upon a fistula indicating the existence of a hidden lesion, as recorded by Jansen, who, by enlarging an orifice in the region of the horizontal semi-circular canal, was able to drain a deep extra-dural abscess. Further, by removing the upper wall of the meatus, we may, if we so desire, explore the dura, and, if necessary, the tegmen tympani may also be taken away. Again, in operating on the mastoid we should, I think, remove

all diseased bone, regardless of the question of exposure or non-exposure of the dura and sigmoid sinus. The evils of doing so are certainly less than the dangers incurred by leaving the infected osseous tissue *in situ*. (Edinburgh Medical Journal, April, 1894, p. 916.)

SIMPLE OTORRHŒA.—Treatment.

As regards the treatment of simple otorrhœa, I can add nothing to the teaching of those who speak with authority, or to the ordinary practice in such cases. We have to deal with a small deep abscess-cavity, inside a bone which easily becomes carious; the abscess-cavity cannot protect itself from septic and putrefactive organisms, and cannot drain, save at haphazard, and uphill, through a minute hole in an unyielding membrane. Our duty, therefore, is to cleanse it and drain it. To drain it, by the careful removal of all obstructions, such as polypi and granulations; to cleanse it, by diligent and vigorous syringing three or four times a day, and by the use of boracic acid, either packed into the meatus or blown into it through a quill after each syringing. And if the perforation be small and recent we must not use any boracic acid; it would only stop the drainage, and do more harm than good. As to the removal of granulations, I believe that astringent powders and lotions are worse than useless; they require chromic acid, forceps, curette, or galvanic cautery. And, for all that we can do, 25 or 30 per cent. of the perforations that we treat are incurable. A perforation that involves a third, or more than a third, of the membrane will never close; it will at best only come to a standstill by adhesion of the remains of the membrane to the back-wall of the tympanum. (Mr. Stephen Paget, Medical Press and Circular, June 20, 1894, p. 644.)

TRACHOMA.—Treatment.

In a discussion on this subject at the British Medical Association (1894), Mr. Sydney Stephenson said he had succeeded in finding the Neisser coccus in all his cases of purulent ophthalmia. He was of opinion, therefore, that the existence of that contagious malady should not be admitted unless that micro-organism could be found. As to the vexed question of distinguishing between follicular conjunctivitis and trachoma, Mr. Stephenson thought that the adenoid tissue and follicle present normally in the conjunctiva acted as a sort of sentinel tissue, reacting to various irritants. The simple irritants might be chemical, as solutions of atropine or eserine, or of a more general character, as impure air or defective sanitary surroundings. In such circumstances the follicles become enlarged, the conjunctiva red and discharging, and the clinical picture of follicular conjunctivitis was produced. On the other hand, if the irritation were

specific, that is, due to an organism, the specific disease, trachoma, came about. The diagnosis between follicular conjunctivitis and trachoma, although it might be difficult from a pathological standpoint, could be made clinically in 95 per cent. of the cases at least. It was, from a practical point of view, of the greatest importance. He had tried a 4 per cent. solution of perchloride of mercury in trachoma, but he had never witnessed cure in four to eight weeks, the period named by Mr. Scott in his communication to the Ophthalmological Society, in 1891. Mr. Stephenson's trials had extended over nine months, but complete cure had not resulted in a single one of the sixty eyes experimented on, although the condition of the conjunctiva had improved in almost all. He had noted sloughs of the conjunctiva and corneal infiltration after the use of the agent, which ought to be washed off the membrane. On the whole, Mr. Stephenson was of opinion that the 4 per cent. solution had few advantages over the 1 per cent. sublimate, which he had employed and recommended since 1887. Mr. Stephenson had used for the last twelve months cyanide of mercury in strengths varying from 4 per cent. to 12 per cent. in watery solution applied daily to the exposed conjunctiva. The reaction following the cyanide was much less than that after perchloride, and the cases did as well under one as under the other remedy. But with all medicaments applications spread over many months were necessary to attain a complete, a satisfactory, and a lasting cure. Removal of the morbid material by the operation of "expression" he regarded as a useful accessory measure, aiding powerfully the daily application of bluestone, the oldest but the best remedy available. (British Medical Journal, September 15, 1894, p. 592.)

OBSTETRICS AND GYNÆCOLOGY.

ERGOTIN AND CORNUTIN.—Their Influence upon the Course of Labour.

Krohl (*Archiv für Gynäkologie*, Band xlv., Heft 1) discusses at length the effects of preparations of ergot upon the uterus during and after labour. He finds that the uterus is favourably influenced by both ergotin and cornutin, but particularly the latter; the diminution in the size of the uterus caused by these agents being most noticeable in the first three days of the puerperal period. In labours when ergotin or cornutin have been employed, there is apt to occur an expulsion of clots of coagulated blood at an earlier period than when no medicament has been used; and it has also been found that the internal

os uteri closes much sooner ; this rapid closure being particularly noticeable after the exhibition of cornutin. The lochia alba is found to appear sooner when cornutin is used than without this means. The pulse undergoes some slowing during the administration of ergotin and cornutin, but no temperature change was noticed, nor was the secretion of milk influenced in any way. These agents distinctly favour uterine involution and diminish considerably the congestion of that organ following labour ; besides this, they prevent the collection of great masses of blood in the puerperal uterus, thus preventing decomposition. As the whole inner surface of the uterus after birth presents a great irregular wound, these remedies by compression prevent the absorption of wound secretions through the lymph spaces. The author does not recommend the employment of ergot in substance, because of its uncertainty of action, but holds in high regard cornutin, or cornutin containing ergotin. Of these preparations Bombel's ergotin is particularly to be commended, although he fears the very considerable cost will prevent the extensive use of this preparation. In concluding his article, the author sums up the indications and contra-indications for the use of ergotin, as follows :—It is indicated: (1) In all obstetric operations, and especially shortly before Cæsarean section. (2) In atony of the uterus. (3) After manual deliverance of the placenta, and after abortion and macerated fœtus. (4) In cases of twin labour, when atony of the uterus is threatened in consequence of the sudden evacuation of the overdistended uterus. (5) In the puerperal period, in subinvolution of the uterus and in recurring sanguineous lochia. (6) In puerperal endometritis combined with vaginal inflammation, and particularly after vaginal irrigation. It is contraindicated in :—(1) Hemorrhage during pregnancy. (2) In cases of weak pains in the period of dilatation and expulsion. It is particularly contraindicated in the latter when combined with contracted pelvis. In cases of tumours filling the small pelvis or the soft parts of the birth canal. In tetanus uteri, and when stricture of the os uteri exists. (The American Journal of the Medical Sciences, June, 1894, p. 731.)

FIBRO-MYOMA.—Operative Treatment of.

Lauro (*Riforma Med.*, 1893, No. 9) reports three successful cases of supra-vaginal amputation, in which the stump was secured with a rubber cord and was dropped back. In each instance the elastic ligature came away through the cervical canal at the end of several weeks.

Zweifel (*Centralblatt für Gynäkologie*, 1894, No. 14) describes at length his method of treating the stump in hysteromyomectomy, which he believes is superior to all that have

been devised. After ligating and dividing the upper portions of the broad ligament, the usual peritoneal flaps are dissected from the uterus. The cervix is then ligated in sections, and the mass is excised without much loss of blood. Finally, the stump is covered with peritoneum by suturing the anterior and posterior flaps. The cervical canal receives no special treatment, with the view of destroying septic germs, except in the case of sloughing tumours. Occasionally, if hemorrhage is feared, a temporary elastic ligature is applied, which is removed after the stump has been ligated. The writer's mortality in 92 cases thus treated was only 3·2 per cent. The comparative mortality by different methods in the hands of various operators, he estimates as follows:—The method adopted by Schroeder, Martin, Leopold, and others, 25·6 per cent.; the use of the elastic ligature, as practised by Olshausen, Fritsch et al., 24 per cent.; ligation and extra-peritoneal treatment of the stump, 5·2 per cent. (The American Journal of the Medical Sciences, June, 1894, p. 736.)

Fibro-Myoma.—Treatment with Chloride of Zinc.

Condamin (*Lyon Med.*, May 28, 1893) has adopted successfully the following course of treatment in the case of fibroids which give rise to no symptoms except leucorrhœa and moderate hemorrhage:—Pencils of chloride of zinc (50 to 33 per cent.) are introduced into the uterine cavity after previous dilatation and irrigation. The cervix is then tamponed with gauze, and the patient lies on her stomach for three or four hours afterward, being kept in bed for eight or ten days. The sloughs separate on the tenth or twelfth day. The patient has considerable pain and a temporary elevation of temperature. The writer reports 20 cases in which the most satisfactory results followed the treatment. (Ibid., p. 737.)

INTRA-UTERINE INJECTIONS OF GLYCERINE FOR THE PRODUCTION OF ABORTION.—The dangers of.

Pfannenstiel in the *Centralblatt für Gynäkologie*, 1894, No. 4, relates his experiences with intra-uterine injections of glycerine for the production of premature labour. He states that when this procedure was first published he admired its boldness, and concluded that the dangers of it were but occasional. His later experience in two cases, the histories of which he gives, has led him to a change of opinion regarding the above method. In the first case labour was induced on account of advanced albuminuria, after the usual therapeutic means had been tried. Following consultation with his colleague, Wilke, the author, under all aseptic precautions, injected 100 cms. of chemically

pure glycerine between the fœtal membranes and uterine wall. In a short time the patient showed symptoms of profound collapse, which, notwithstanding all means of restoration, ended fatally in a few hours, the patient dying undelivered. The autopsy showed death to have been due to nephritis. In the second case induction of labour had been attempted by bougies four weeks before term on account of rhachitic pelvis combined with stenosis of the os uteri and cervix. The bougies not having the desired result, after consultation 100 cms. of concentrated glycerine were injected. One hour afterward the patient suddenly became cyanotic, and the temperature, which had been 39°, fell to 37° C, rising again to normal. The urine drawn off by catheter an hour after the injection showed blood, albumin, and casts, and spectroscopic examination demonstrated methæmoglobin with hæmoglobin. In twenty-four hours these abnormal constituents gradually disappeared. The glycerine failed to excite uterine contractions, but a small living child was delivered later by other means. The mother recovered. The author believes the glycerine in the above cases caused decomposition of the blood, and he agrees with Afanassiew, who found that in dogs glycerine produced hæmoglobinuria, glomerulo-nephritis, and even interstitial nephritis. Although in the first case nephritis undoubtedly existed, it is his opinion that the glycerine injected hastened the fatal termination. (Ibid., p. 730.)

METRORRHAGIA.—Ergot or Hydrastis in.

Dr. Liégois believes that ergot is the remedy for *post partum* uterine inertia, but that hydrastis can be substituted with advantage in the treatment of metrorrhagias other than these. For chlorotics he prescribes ferric chloride or sulphate, but, with the iron, always hydrastis. For neurotic individuals the chloride or sulphate is replaced by the ferric valerianate or bromide and the hydrastis is continued, even during the menstrual epoch, because it does not give rise to uterine colic as does ergot. Neither ergot nor hydrastis can take the place of digitalis in cases where the hemorrhage is due to hyposystole in disease of the mitral valve of the heart; nor the place of quinine when it is due to malarial infection. Hydrastis is especially useful in the hemorrhages of the menopause; for the medication of urgency, hypodermatic injections of quinine are necessary. If uterine colic is a prominent symptom during the administration of hydrastis, the remedy is not at fault, but the cause lies in intra uterine clots, and relief may be obtained with piscidia and viburnum. In metrorrhagias connected with uterine neuralgias and metritis he adds, to the hydrastis, piscidia, and viburnum, cannabis indica. For the hemorrhage of endometritis fungosa,

or of cancer, surgical measures must be adopted. If the uterine hypercongestion is secondary to ovarian neuralgia the combination above mentioned is useful. He does not recommend hydrastinine, for the dose varies so greatly, nor is it advisable for hypodermatic injections, which are always painful and leave behind indurated nodes.—*Journal des Practiciens*, 1894, No. 29, p. 344. (The American Journal of the Medical Sciences, August, 1894, p. 219.)

MYOMECTOMY.

At the International Medical Congress (1894) Dr. Granville Bantock described the operation which he now performed. The several steps were as follows:—To secure the broad ligaments, and, if possible, the uterine arteries, by ligature; to apply a temporary elastic ligature around the base of the tumour; to divide the peritoneal envelope of the uterus all round, about two to three inches in advance of the temporary ligature; to isolate the uterine body down to the level of the internal os, and there apply a *serre-nœud*, or permanent elastic ligature; to arrest any bleeding that may occur on removing the temporary elastic ligature; and finally to secure the uterine envelope to the parietes by double sutures, and then remove any redundancy of tissue and pack the cavity with iodoform and absorbent gauze after the closure of the parietal wound. The ovaries may be removed at any convenient stage of the operation. The redundant portions of the uterine envelope are best removed by means of Paquelin's cautery. The mortality with this operation, although reserved for the most difficult cases, had been 1 death in 23 operations; the patient in this fatal case was suffering from albuminuria, and death, which ensued seventeen days after operation, was mainly due to this complication. His general result in 166 cases treated by the extra-peritoneal method was a mortality of about 15 per cent. (18 per cent. in the first half of the cases, 12 per cent. in the second half, and only 6 per cent. in the last quarter of the series). As he only operated in cases in which life was imperilled by hemorrhage or degeneration of the tumour, he thought that these statistics would be considered good. (The British Medical Journal, April 21, 1894, p. 856.)

Myomectomy.

At the International Medical Congress (1894), Dr. Péan (Paris) read a paper on the extirpation of large uterine fibromyomata of the body of the uterus. The principles which guided him in resorting to operation were (*a*) that submucous and interstitial tumours of the body ought to be removed early; (*b*) that preference should be given to a method of operating which

preserved the uterus while permitting extirpation of the tumour; (*c*) that, other things being equal, large tumours should be removed through the abdomen, small or moderate sized tumours through the vagina; (*d*) that if the tumour could not be removed without serious mutilation of the uterus, it was better to remove the uterus and appendages; (*e*) that tumours originating in the posterior uterine wall, and growing down in the recto-vaginal septum, were best approached through a perineal incision. In performing this operation he employed two long-bladed toothed clamps, one blade being passed into the vagina, the other into the rectum. Hemorrhage was thus prevented, and when the perineum was divided in the median line the tumour came into view, lying between the mucous membranes of the vagina and of the rectum. The tumour was then seized with toothed forceps and removed in fragments. Hemorrhage was controlled by pressure forceps, left in place, if necessary, for some hours. Into the large cavity left by the removal of the tumour a large fenestrated elastic drainage-tube was introduced, and packed with sponges treated with iodoform or salol, and provided with threads. The rectal and vaginal mucous membranes and the intermediate tissues were united by sutures. The sponges were withdrawn on the second or third day, but the drainage-tube was retained for some time longer to permit antiseptic irrigation of the cavity. (Ibid., p. 856.)

Myomectomy.

The method of intra-abdominal treatment of the stump, elastic ligature for provisional compression of the pedicle is always employed. The second step consists in making flaps from the peritoneal coat, removal of the tumour, cauterisation of the cervical canal, and excision of the charred tissues. Third step: Complete ligature of the stump with catgut. Fourth step: Stitching peritoneal flaps previously formed over stump. The simplification, recommended after a large number of complete operations, consists in this, that after ligature of the broad ligaments the rubber tubing is no longer placed, nor the cervical canal cauterised, nor the cauterised portion cut out. After ligature of both broad ligaments their uterine ends are clamped, and they are then divided between ligature and clamp. The peritoneum in relation to the uterus is cut through obliquely on the anterior wall of the tumour from one broad ligament to the other. With knife or scissors the boundary marking off the displaceable from the non-displaceable peritoneum is sought for. These flaps can generally be peeled off the uterus with a blunt instrument, except high up on the body of the uterus. Then the end of the last thread which had been placed through the lowest hole in the broad ligament is set in the sharp forceps

needle, together with a catgut thread, and thrust from before backwards through the cervix to ligature it continuously in sections, the proceeding being continued from left to right. With thin cervices, three, with thick, up to five ligatures are required. They are placed in chain-stitch and quickly tied. The tumour above the ligature can then be speedily and bloodlessly cut off. The final step consists in stitching the anterior peritoneal flap over the whole ligatured stump to the peritoneum of the posterior wall. This is done with intestinal needles and the finest catgut. The fundamental differences of the alteration consist in that no special attention is bestowed on the erroneously dreaded cervical canal, and no special treatment falls to its share. Including 51 cases which have been reported in Zweifel's clinical gynæcological lectures, up to now 92 myomo-hysterectomies and 2 myomotomies, after Martin, have been performed, with three deaths ; a mortality of 3·2 per cent. Two of them have been already reported, as above mentioned ; the third, which is the only one among the 43 fresh operations, occurred as the result of twisting of the intestine, the lowest part of the small intestine at the entrance into the cæcum being bent directly backwards. The patient did well for the first three days after operation, and then died rapidly within 24 hours. At the post-mortem there were no signs of peritonitis. The condition of the stump was interesting ; intestine was not adherent to it, and it resembled fresh uterine tissue. In this case, at the operation, the cervix had been cauterised and cut out, the upper part ligatured with catgut, and then the anterior peritoneal flap had been sewn over the ligatured stump. Macroscopically no difference from the unligatured cervix was to be noted ; microscopically the condition was surprising. The walls of the cervical canal had grown together so cleanly that the union was only microscopically ascertained. In one place the muscular bundles approached closely to each other ; that they had grown together one recognised only from the unsymmetrical positions they occupied. In other places the muscles were still separated, a layer of red blood corpuscles lying between them. This information shows that the ligatured uterine tissue remains nourished and undergoes no necrobiotic change, if a little blood-supply is provided by the covering. Zweifel accepts, from another source, the following classification of methods with results :—(1) Vertical and transverse suture, of which the chief types are the methods of Hofmeier and Schroeder. Out of 775 operations by 34 operators, 199 died—a mortality of 25·6 per cent. (2) Elastic ligature : 127 operations by 11 operators, 31 deaths—a mortality of 24 per cent. (3) Complete ligaturing of pedicle and covering it with peritoneum : 86 operations by 9 operators (including Zweifel), 5 deaths—a mortality of 5·2 per cent. Zweifel remarks that

"his most recent proposal introduces a principle which meets with great opposition, and is regarded by many as a retrogression. Prejudice against opening the cavity of the uterus, on account of the risk, still lies deep in modern gynæcology. The cervix is considered as a haven of safety for all bacteria, but the vagina is never mentioned." Zweifel reiterates his assertion that in the healthy uterus and upper part of the cervical canal germs never occur, as continuous research has again and again shown. (A. Wallace, Esq., Owens College Medical Chronicle, June, 1894. p. 208.)

MYOTOMY.—Treatment of Stump after.

Mangiagalli (*Cent. für Gyn.*, No. 16, 1894), in a paper read before the International Congress at Rome, discusses the various methods of operating, and comes to the following conclusions :—(1) The influence of the treatment of the stump on the mortality in cases of hysterectomy has been exaggerated. (2) Other general and local conditions deserve much more attention ; as the intraligamentous development of the tumours, which gives a bad prognosis. (3) In order to be able to estimate the results of all methods of myotomy, it is necessary to divide fibromata into (*a*) intraligamentous, (*b*) subserous, submucous, and interstitial. The second class gives with either an extra or intra-peritoneal treatment of the stump a mortality of about five per cent., which can with difficulty be improved by total extirpation (abdominal or abdomino-vaginal). (4) The intra-peritoneal treatment of the stump must, with few exceptions, displace the extraperitoneal, since it gives the same mortality with less danger. (5) The Zweifel method is to be preferred on account of its simplicity and the possibility of rapid performance. Mangiagalli covers the elastic ligature with the dissected peritoneal flaps, without removing it as Zweifel does. (6) The intraligamentous fibroids show at present a comparatively high rate of mortality, and as yet there is no special method of operating which has the preference, though the total extirpation per abdomen is the one which affords the best chance. (7) Vaginal hysterectomy is calculated by *morcellement* and the clamp method to widen the indications for myotomy ; still it cannot be employed in all cases, so cannot be compared with other methods. It is a good substitute for castration in those cases where this is indicated. Jacobs, in the same discussion, says that the ideal operation is the complete extirpation, body and neck, so as to avoid leaving a stump, to lessen shock, and to diminish the amount of blood lost, which is important with patients who are already anæmic. He employs the abdominal method as follows :—(1) Opening of both vaginal *cul-de-sacs*, and clamping of the uterine arteries. (2) Laparotomy. The

tumour is lifted out, both broad ligaments clamped with specially constructed clamps. The uterus is then removed through the abdominal wound, after the broad ligaments have been cut. The abdominal wound is then closed, and the vagina filled with iodoform gauze. Péan refers to the old idea, that very large tumours, or those which immediately threaten life, should be operated on, and says that, having recognised that the most of these tumours lead to complications which threaten life or render it miserable, his principle is to remove them while small. His experience is summed up as follows :—As soon as a fibroma of the uterine body is recognised it should be removed by the abdominal method without regard to its situation, provided it is of good size, using the elastic ligature, clamps, and *morcellement;* if of small size, by the vaginal method. He refers to one class of tumours which develop in the posterior wall of the uterus, and so press down the posterior *cul-de-sac* and displace the neck, that it is impossible to remove them by the vagina. These he removes by an incision laterally through the perineum and the recto-vaginal septum up to the peritoneum. His method should be read in the original. Laudau's conclusions are as follows :—(1) For tumours which do not reach higher than the umbilicus the best operation is hysterectomy by means of piecemeal enucleation by the vagina. (2) In the case of larger tumours, laparotomy, and rapid enucleation of the single or multiple fibroids, and extirpation per vaginam of the stump. (3) It is important not to close the peritoneal cavity entirely, and with the use of clamps this is fortunately impossible. (Boston Medical and Surgical Journal, October 11, 1894, p. 366.)

PROCIDENTIA.—Vaginal Hysterectomy for.

Savage, in a recent discussion on this subject at the British Gynæcological Society (*Brit. Gyn. Journ.*, 1894, No. 2), approved the operation in intractable cases of complete procidentia occurring in patients after the menopause. He made the surprising statement that the operation was attended with much less risk than was either ventro-fixation or shortening of the round ligaments, which was severely criticised by Fenton and Bantock. The former believed that ventro-fixation was applicable to all such cases, while the latter stated that in an experience of thirty years he had never met with a case of prolapsus in which perineorrhaphy and the use of a Hodge pessary were not sufficient to correct the displacement (!) (The American Journal of the Medical Sciences, September, 1894, p. 362.)

[Comparison of this discussion with one on the same subject at a recent meeting of the New York Obstetrical Society shows that English, as well as American, gynæcologists find it difficult

to modify their long-cherished views in accordance with the progress of modern surgery.—Ed.]

PUERPERAL FEVER.—Its prevention.

Dr. Alexander describes the management of the lying-in women at Brownlow Hill Workhouse as follows :—The patients are, if possible, bathed, or at least washed all over, and the genitals especially well cleansed and rendered antiseptic by carbolic lotion. The vagina is douched with perchloride of mercury, solution 1-2,000, and the hands of the nurses cleansed by soap and water and by perchloride lotion—a basin of perchloride is kept at the bedside, into which the nurses dip their hands frequently. Digital examinations are avoided as much as possible, and the patient is kept covered to avoid chills ; the room is warm, but well ventilated. When the child is born the placenta is allowed to come away of itself, or its expulsion is favoured by gentle pressure, but forcible expulsion is not allowed to be practised by the nurses, the doctor being called in if any difficulty arises. At one time a nurse practised the forcible expulsion in a very energetic way, and some mortality took place before it was found out that she exercised so much force. The placenta is allowed to come away gently and the membranes to flow out ; all snatching and tearing are avoided. The placentas are kept just as they were expelled until examined by the house surgeon or myself, who sees that the membranes are entire, and that nothing is missing. The vulva is now cleaned with an antiseptic, carbolic or perchloride, and an antiseptic cotton-wool napkin applied. A pad and binder are firmly put on the abdomen, and the patient warmly covered up. The napkin and cotton-wool are changed frequently, and these are never tied on firmly. I have seen the napkin so firmly tied on that the vagina was sealed by the labia being compressed over it, and the discharge flowed out in abundance each time the napkin was removed. The vulva is washed with an antiseptic each time the pad is changed, but this is done without disturbing the patient more than is necessary. Formidable routine, frequent washing, and exposure do more harm than good. The diet is simple, the ward is kept quiet, and no visitors are ever allowed during the first week. By this means we restrict the sources of contagion from outside as much as possible, and we keep the patients free from the influence of exciting or depressing news. The bowels are moved on the third day, after which solid food is allowed. The patient gets up on the eighth day, and passes into the convalescent ward. We keep the patients in for at least a fortnight after confinement, except in some special cases, where the patients go out at their own risk before the time, but we generally keep

them longer if they do not wish to go out. They are never sent out against their wish ; and if they have nowhere to go, they are transferred to a particular division of the workhouse set apart for such cases. (Liverpool Medico-Chirurgical Journal, July, 1894, p. 362.)

PUERPERAL SEPTICÆMIA.—Turpentine in.

To turpentine I would myself attach special importance in all cases of puerperal septicæmia in which its use may be tolerated by the stomach and bowels. In such cases rectified spirit of turpentine, when given in efficient (*i.e.*, ten to twenty drops) doses every third or fourth hour, and when not specially contraindicated by gastro-intestinal complication, evinced by retching and diarrhœa, unquestionably exerts a marked influence in relieving meteorism, stimulating the system, and improving the discharges of the puerperal patient, as has been abundantly proved by clinical experience from the time of Dr. Brennan, who, upwards of eighty years ago, was expelled from the Rotunda Hospital for there first insisting on its use, down to that of those who, like myself, have continued its employment in similar instances to the present day. How turpentines operate in such cases I know not, though, as I have before conjectured, its germicidal potency has probably no less share in its remedial action than its effect as a powerful stimulant. (Dr. More Madden, Dublin Journal of Medical Science, June, 1894, p. 488.)

SYMPHYSIOTOMY.

Pinard (*Annales de Gynécologie*, January, 1894), reports the histories of 13 cases of symphysiotomy in the clinic of Baudelocque during 1893. Of the above cases, 9 were multiparæ and 4 primiparæ. Regarding the deformity for which operation was done, 10 had rhachitic and 3 generally contracted pelves. Twelve of the mothers lived, and one died. The children (thirteen) all lived. No accidents were encountered during the operations, although many of the patients had bad obstetric histories. Hemorrhage, other than that occurring at the time of section of the symphysis and subpubic ligament, was easily controlled by a tampon. Twice during the extraction of the fœtus a tear occurred in the anterior vaginal wall, making this canal communicate with the field of operation. All these tears were in primiparæ. A vaginal tampon of iodoform gauze was sufficient to produce primary union in both. In one case there was a lesion of the bladder, resulting in a vesico vaginal fistula. A pelvic deformity complicated with ankylosis of the right inferior extremity formed an unyielding point against which the bladder, during extraction of the fœtal head, was

pushed. The patient recovered. In one case there was incontinence of urine, which existed some days after delivery. No injury to the bladder was present. The trouble yielded later to electricity. The only fatal termination was in a case with contracted pelvis. Liquor amnii was fœtid. Notwithstanding antiseptic treatment to uterus and vagina, the woman died on the ninth day of septicæmia produced by staphylococci. The child lived. Experience has shown the author that it is well, particularly in primiparæ, to dilate the birth canal by means of the balloon of Champetier de Ribes before section of the bony pelvis, and to avoid tearing the soft parts of the mother at the moment of birth; the danger of the latter being considerably reduced by practising the precaution (indicated by Varnier of adducting the legs when the head is engaged). In cases where the head is very high, the author considers it preferable to aid the engagement of the head when in the grasp of the forceps by pressure over the abdomen rather than to let it engage alone. In closing his report, Pinard draws the following conclusions:—(1) Induced labour should be abandoned in all cases in which symphysiotomy permits the passage of the head of a fœtus at term; (2) abandon all applications of the forceps where osseous resistance exists, either at the superior strait, in the pelvic cavity, or at the inferior strait; (3) embryotomy on the living infant must be absolutely abandoned; (4) the pelvis should be enlarged temporarily by symphysiotomy, pubiotomy, ischio-pubiotomy, or coccygotomy in all cases in which osseous resistance is not conquered by the head well flexed and when calculations demonstrate that section of the pelvis will permit the passage of the head; (5) amputation of the uterus and ovaries in cases of complete pelvic narrowing. He abandons all applications of the forceps at the superior strait because of the danger of fracture of the fœtal skull. Induced labour he abandons, because in many cases infants are born which are not viable, the operation frequently comes too late, and (a point to which he calls special attention) the most recent investigations of neuropathologists have demonstrated that an infant born with difficulty before term may be affected with cerebral diplegia. (The American Journal of the Medical Sciences, May, 1894, p. 596.)

UTERINE FIBROMA.—Treatment.

Dr. Cushing, of Boston, Mass., reaches the following conclusions in an article on this subject:—(1) That electricity is useless and dangerous, and has no place in the armamentarium of the surgeon. (2) That no method will compare with that of extra-peritoneal treatment of the stump in favourable cases, that is,

where the abdominal walls are not too thick and the tumour can be lifted out so that a constrictor can be applied around the whole pedicle, including the uterine appendages; that the advantages of this method lie in its rapidity, in the short time during which the abdomen is open, in the entire protection of the intestines from exposure and from handling, and in absence of shock: that with proper care there need be no sloughing of the stump, and little or no suppuration of the wound. This, then, for me is the operation of election for the present, especially in private practice and in all cases where patient is not strong and is ill prepared to withstand the shock of the longer operation required by other methods of treatment of the stump. (3) For the intra-extra-peritoneal treatment, I should always in future leave as little of the cervix as possible, dilate it, burn it, and drain it. This method is applicable to cases in which it is difficult to apply the former one, owing to thickness of the abdominal walls or the rigidity of the pelvic floor, or the presence of dense adhesions requiring drainage. I see little advantage to be gained from leaving any cervix. To avoid the great danger of sloughing of the stump, it must be amputated well below the level of the internal os, after separation of the bladder from the cervix and ligation of the uterine arteries. When all this has been done, there is no difficulty or loss of time in removing all the uterine tissues. Drainage should usually be employed, both through the vagina by gauze and by a glass tube at the bottom of the pelvis, as there is pretty sure to be free oozing. The fact remains, however, and must never be forgotten, that for either of these methods of operation, by intra-extra-peritoneal treatment or by total abdominal extirpation, the operation is prolonged from half-an-hour to an hour. During this time the pelvis is exposed to the air and to much handling; considerable blood may be lost, which runs in among the intestines; there is an added shock from the large amount of ether consumed; and the whole burden of proof is, in my judgment, still on those who would use these operations in cases in which the extra-peritoneal treatment can easily and quickly be performed. (Boston Medical and Surgical Journal, March 29, 1894, p. 306.)

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Medicine.

GENERAL MEDICINE AND THERAPEUTICS.

Art. 1.—ON INFLUENZA.

By Samuel West, M.D., F.R.C.P., Assistant Physician to St. Bartholomew's Hospital.

[The following is an excerpt from an address delivered before the Harveian Society, March 15, 1894 :]

Influenza may be described as an epidemic zymotic fever of sudden onset and short duration, attended with great prostration and marked constitutional symptoms, associated with more or less catarrhal, nervous, or gastro-intestinal disturbance, and especially liable to be complicated with severe respiratory affections, to which its mortality is chiefly due. It has been commonly described as presenting itself mainly in four forms, viz., the febrile, catarrhal, nervous, and gastro-intestinal ; that is to say, forms in which these respective symptoms predominate. This classification is purely artificial, for all the symptoms are present more or less in every case, and the difference is one only of degree. Still, it is remarkable how the one or other set of symptoms predominates in different epidemics. The catarrhal form, which was so prevalent in the epidemic of 1847, and which represents the popular conception of the disease, has been singularly infrequent during the whole of the present epidemic, which seems, on the other hand, to have been especially characterised by nervous symptoms. As to the relative frequency of the other forms, subsequent speakers may have some information to give.

Onset.—The suddenness of its access is one of the peculiarities of influenza, and the absence of premonitory symptoms another, persons being often struck down by the disease without warning in the midst of perfect health ; and yet, sudden as its access is, it rarely commences with an actual rigor. The most frequent

early symptom is headache, which is usually intense and rarely absent. In severity and character it most resembles migraine, but I do not think it is ever unilateral at first, though local neuralgia of the head, as of other parts, may arise as a sequel at a later date. It is felt like a bilious headache all over the head, which throbs and seems as if it would burst. It is often paroxysmal and excruciating, aggravated by the slightest movement, and very refractory to treatment. The eyes are suffused and heavy, and pain is often felt of great intensity in or behind the eyeballs. Another common place for initial pain is the small of the back, and in other rarer cases the first symptom has been violent abdominal colic, or, more correctly, visceral neuralgia. Another interesting mode of onset is by sudden collapse: the patient, having been the moment before apparently well and perhaps at work, suddenly turns faint or giddy, and may even fall down. This is what has been described as a fit, but I have not met with any instance in which the attack has been ushered in by actual convulsions. Hysterical attacks have not been uncommon. The patient, generally a woman, looks ill and frightened, and bursts out into crying or screaming, which she appears quite unable to control. The sudden onset of such nervous symptoms cause, as would be expected, great alarm, especially in nervous persons of either sex, and this accounts for many of the so-called hysterical attacks, which are really fright. In another class of cases the patients have become suddenly drowsy, or even almost comatose. They lie quiet, but in a dazed, stupid state, from which they can be roused, but into which they again quickly relapse. With such symptoms cerebral hemorrhage, or even meningitis, has been thought of, and where they are associated with vomiting and headache it is evident that the difficulties of diagnosis may be not inconsiderable.

Fever.—The usual type of fever is a sudden elevation to 102° or 103° F., at which level it remains with little remission for two or three days, and then suddenly falls. Hyperpyrexia is rare. The temperature may reach 104° or 105°. I have seen it on two occasions rise to 107° and 108° respectively in an uncomplicated case. As such elevation of temperature is rarely maintained for long—that is to say, for more than an hour or two, if so long—symptoms of hyperpyrexia are usually absent. With pneumonia it may run high; but, on the other hand, many of the worst cases of influenzal pneumonia have a low temperature. Whether apyretic influenza exists—*i.e.*, influenza with other symptoms, but without fever—is difficult to prove, but I believe it does, and I think it is not uncommon. The feature in the influenza temperature chart to which I would draw especial attention is the prolonged depression below normal

which follows the febrile stage, a depression which is not met with in anything like the same degree in any other fever of such short duration, and which may be as prolonged and as marked after a mild case of influenza as it is after a severe case of typhoid fever. It may continue for a week, or even two. It deserves especial attention, for it is, as a rule, associated with similar depression in the pulse and respiration. It indicates a low and depressed vitality, and is of great practical importance, for it is during this depression stage that most of the graver complications arise, so that I believe it to be a good and safe rule in practice to keep the patient under strict control until this stage is passed.

Depression.—The nervous and muscular depression is perhaps the most striking and remarkable feature in the disease. All at once all energy and vigour vanish ; the patient feels fit for nothing and cares for nothing, is completely apathetic, listless, and gloomy, and may hardly have strength enough even to be irritable or sulky. During the acute fever the depression shows itself in the character of the pulse and heart's action, as well as in general asthenia—symptoms which in persons already enfeebled by ill-health or old age may excite the gravest anxiety. This asthenia is usually the earliest symptom to appear, may continue the most marked symptom throughout the attack, and be the last to disappear. It may come on as suddenly as the fever does, last even for weeks after the fever has subsided, and then vanish as quickly as it came. During the acute state the depression may take the form of insuperable drowsiness or heavy sleep, and this may be almost as deep as if the patient was narcoticised.

Pains.—These are of two kinds—(1) Severe localised neuralgic and frequently paroxysmal ; (2) general aching in the limbs and back, lasting during the febrile stage. The common seat of the neuralgic pain is the head. Headache is intense, being often the first symptom and the most trying. It usually begins, continues, and ends with the fever. Neuralgic pains may be felt in almost every part of the body. The attacks occur in paroxysms, which may be so severe as to make strong men cry out as in locomotor ataxy. They have been described as shooting, lightning pains, or as constricting, crushing pains, as if the chest or abdomen was compressed in a tight cuirass, or gripped by a beast whose claws could be felt digging into the flesh. Such severe paroxysms are, as a rule, limited to the period of fever, but neuralgia of the ordinary type may persist for some time—even weeks or months—after the fever is past, and so may the less severe pains which are usually called rheumatic. The most remarkable form of paroxysmal pains is that which has been described as angina-like. It is felt in the

præcordial region, and is associated like angina with horror and fear of death. Such attacks are fortunately of short duration, for the patient feels as if he could not live if they lasted long. It may be questioned whether they are really of cardiac origin. I have a description of one case in which the action of the heart was but little affected at the time. Angina-like attacks have been singularly rare in the present epidemic, but in 1847 they were so frequent as to form part of Copland's definition of the disease.

Digestive system.—The tongue is usually moist, but little coated, pale, flabby, and indented by the teeth. The appetite is often fair, but there is no enjoyment of food, for the taste may be lost. The loss of taste is a very remarkable symptom, and a very common one. It often commences with the fever and vanishes with it. When it continues it causes strange discomfort, for smell may be retained, and thus the aromatic flavour of the food predominates, a perversion which makes some kinds of food almost nauseating and others unpalatable. Taste is sometimes absolutely lost for all things but salt, vinegar, or such like pungent flavours. Loss of taste is so uncommon in other acute affections that it may become of diagnostic value in influenza. Sometimes distaste reaches an extreme degree, so that there is actual repulsion of food and rejection of it at once if it is taken. Vomiting has not been a common symptom in this epidemic except when due to dyspepsia. In its most troublesome form, however, it has no relation to food, and is probably toxic. It may then be very severe and almost continuous. It lasts, as a rule, only as long as the fever, but occasionally continues for a few days into convalescence. When associated with violent headache, as it may be, the diagnosis from meningitis is not always easy. The bowels have been, as a rule, confined and irregular in action, but diarrhœa has been quite infrequent. Colic, however, has not been so uncommon. It seems in most of the instances to be really rather a form of neuralgia than referable to intestinal causes — to be, in fact, visceral neuralgia. When intense and of sudden onset, and especially if associated with vomiting, it may arouse suspicion of acute intestinal obstruction, and cause great anxiety.

Urinary system.—At the time of the fever the urine is usually unaffected, but if altered it presents the ordinary febrile character, being concentrated, of high specific gravity, and depositing a copious sediment of urates on cooling. It may contain a little albumen and also a little blood. As a rule, both are present only during the febrile stage, unless due to nephritis, which, however, is a rare complication, and met with rather after than during the acute stage.

Cutaneous system.—Sweating is a prominent symptom. An attack of sudden fever with sweating will in most cases prove to be influenza, if not rheumatic fever, and from this the diagnosis is not difficult, except in quite exceptional cases, for the pains felt are not in the joints but in the muscles. So-called rheumatic pains are a very common sequela of influenza, and may continue for weeks or months and prove very intractable, but I have observed no association of influenza with acute rheumatism. In the early part of the present epidemic a great deal of attention was attracted to rashes, but recently we have heard little about them. Rashes are now regarded in the same light as when they occur in rheumatic fever—as being of clinical interest but of no diagnostic value. It is only now and then that any mistake in diagnosis is possible, and this only just at first, for the course of the case usually makes its nature clear. The rashes described have been of all kinds—scarlatiniform, measly, erythematous, urticarial. The only rashes which are of clinical importance are those which resemble the eruptions of the acute exanthemata—*e.g.*, scarlet fever and measles.

Circulatory system.—The heart's action is slow and the sounds are feeble, especially the first. The pulse is of low tension and small volume, and is sometimes hardly to be felt. Its ratio is usually below that which the height of the temperature would require, so that the pulse-respiration ratio may be perverted, and resemble somewhat that of pneumonia. More frequently the slowness of the pulse is accompanied by similar slowness of respiration, and this, strange to say, may continue even when acute pneumonia appears as a complication, so that the perversion of the pulse-respiration ratio typical of pneumonia may be absent. The most remarkable fact about this depression in the pulse and respiration rate is that the attacks often occur in paroxysms, which are sometimes almost periodic in character. I have seen them recur at almost regular intervals of three hours. They come on quite suddenly, without any warning. The patients complain all at once of great exhaustion or faintness, and call out for some food or stimulant. They look pale, as though they were going to faint, as they sometimes do. The pulse is hardly to be felt, and may even be quite imperceptible at the wrist; the heart sounds are hardly audible, and at the same time the respiration may become similarly slow, feeble, long drawn, and sighing. The paroxysmal attacks of collapse are most mysterious, often most alarming, and sometimes fatal. They do not stand in any necessary relation to the fever or the general severity of the other symptoms. They may be severe even in otherwise quite mild cases, and absent in severe cases. At the same time in slight degree they are common enough in cases of every grade of severity. I do not know any more striking peculiarity of influenza than these strange attacks

of collapse ; nor do I know of any other disease in which they occur with the same frequency and severity. The condition has now become so familiar to me that I find myself unconsciously speaking of the collapsing form of influenza, though I do not think that it is generally recognised as a special form of the disease. Yet it certainly deserves a special name as much as many of the others which have received one. These collapses are most frequently described in connection with some complication—*e.g.*, pneumonia, to which they are referred—but such recurrent collapses are very unusual in ordinary croupous pneumonia, and, as I have said, they are common enough in influenza without pneumonia. Hence it follows that they are merely aggravated and exaggerated when pneumonia occurs, and of course with a complication so grave in itself collapses of this kind are especially dangerous, and are in not a few instances the actual cause of death. What their pathology is I do not know. I believe they are central in origin, and probably toxic in nature, but why they should be paroxysmal and recurrent no reason can be shown. The attacks of collapse are entirely different from the paroxysms of angina-like pain previously described. I have seen many cases of collapsing influenza, but never one in which it was associated with the angina-like pain. It is true that instances of the latter have been rare throughout the recent epidemic, but the collapsing form has not been uncommon, and if there was any real connection between the two they could hardly fail to have been now and then associated. Collapse attacks are as a rule unattended with dyspnœa or cyanosis ; the respirations are slow, long drawn, and sighing. Paroxysms of dyspnœa, on the other hand, associated with more or less cyanosis, also occur in influenza ; but in them the respirations are hurried and shallow. They do not stand in any relation to the attacks of collapse. They are, I believe, cardiac in origin, the heart becoming suddenly embarrassed in its action, and contracting imperfectly and irregularly, causing a sudden engorgement of the lung, and therefore dyspnœa. Though sudden in onset, they subside much more slowly as a rule than the attacks of collapse, and if they are often repeated the dyspnœa may become continuous and lead to death with the signs of gradually increasing pulmonary congestion, just as occurs in morbus cordis ; for which reason I think there can be no doubt that they are really cardiac in origin, and therefore stand in contrast with the collapse attacks, which are probably central in origin.

Nervous system.—Of the general depression, of the pains, and of the nervous vomiting enough has been already said. Drowsiness is a part of the disease, and one of the older names by which it was described was "sleepy sickness." The drowsiness

is sometimes so heavy that it may be called sopor, and sometimes amounts almost to coma. The diagnosis of meningitis, or even cerebral hemorrhage, has been made now and then on this account, but the sopor is rarely so deep that the patient cannot be roused for a time. Delirium is not uncommon, usually of the low, muttering, asthenic type, but occasionally, especially in children or young adults, of a more active form, the patients having attacks of great excitement, as in hysteria or delirium tremens, from both of which affections I have known the diagnosis to be far from easy. When these forms of delirium are associated with sopor they present great diagnostic difficulties. Of all the complications and sequelæ of influenza, by far the most frequent and important are those of the respiratory organs, notably bronchitis and pneumonia. Not only is there a special liability to such affections in the course of the disease as well as after it, but it is to these complications that the mortality of influenza is chiefly due.

Pneumonia.—Pneumonia in the course of influenza may appear either at the commencement of the attack or during the post-febrile stage, some days, it may be, after the fever has fallen. As a sequela it develops usually in consequence of exposure during convalescence. This explains its preponderance among men and its frequency after quite mild cases. The susceptibility to pneumonia is evidently very greatly increased both during influenza and after it. The pneumonia of influenza presents several clinical peculiarities which are worthy of attention. It is generally of an asthenic type—*i.e.*, it is modified by the predominance of the asthenia characteristic of influenza. It is often of insidious and slow development. A rigor rarely marks its access. Pain in the side is often absent throughout. Cough may be slight and expectoration absent. The respirations are often little increased, and may continue even at the normal rate. I have seen them not above twenty at any time, and that with well-marked physical signs of consolidation. The pulse in the same way may be slow, and the pulse-respiration ratio be in consequence hardly altered from the normal. The temperature is very irregular; it is usually also low, often remaining 2° or more below the average of ordinary pneumonia. It is remittent in type, and the daily oscillations are often considerable. It rarely remains for long at any one level. It may rush up to a great height—106° F. or more—but soon drops, it may be to nearly normal, to rise again, perhaps as high, a second time even in the same day. The tongue is often moist and clean, and remains so throughout. In fact, a dry tongue is an exception rather than the rule. Sweating is often profuse, even during the acute stage, and a dry skin the exception. The dyspnœa is marked, and there may be considerable cyanosis. This in part

depends upon general bronchitis, which is usually present, and often precedes the pneumonia, into which it gradually runs. There is marked want of proportion between the general symptoms and the physical signs. The pneumonia is often of the wandering type, creeping slowly from one part of the lung to another until a very considerable portion may be involved. The attacks may be in this way indefinitely prolonged, and this constitutes one of the dangers; in fact, the pneumonia of influenza is in almost all respects atypical or eccentric. Eccentricity in acute disease is always to be suspected, for with one eccentricity there is always another in reserve, which upsets all ordinary calculations, and therefore makes prognosis very difficult. With a pneumonia the prominent characters of which are its asthenia, its long duration, and its tendency to creep from part to part, the prognosis must of necessity be grave, and especially in those enfeebled by ill-health or age; but the pneumonia of influenza lays a heavy hand on the young and strong, and its mortality in the present epidemic has been specially great in the middle period of life. There has been no disease of recent years which has carried off so many persons in the full vigour of life, at the time when they were most useful to society and could least well be spared. The most interesting group of cases, and from a clinical point of view the most important on account of the difficult questions which arise, is that in which the pneumonia is of the broncho-pneumonic form—*i.e.*, occurs in scattered patches throughout one or both lungs. In such cases the temperature may remain raised for many days or even weeks, and be of a hectic type, with evening rises. The patients lose flesh and strength rapidly, and though they may be able to crawl about to their work, they are quite unfit for it, and look and feel very ill. The expectoration is not infrequently tinged with blood, or sometimes small amounts of pure blood are brought up at intervals. The presumption raised is in favour of phthisis, and when such a condition has persisted for three or four weeks the diagnosis of phthisis seems justified; yet the course of the case may show that the diagnosis was incorrect, for the patients after a time lose all their symptoms, recover strength and weight, and return to perfect health. In previous epidemics cases of this kind have not been uncommon, though rare in the present. I have seen one or two instances of it myself. The most striking occurred in a man about 35 years of age, with a previous history of perfect health. All the symptoms dated from an attack of influenza a few weeks before he consulted me. Then he presented all the appearances of phthisis. He had lost flesh and strength, looked pale and ill, with dilated pupils. He had had three or four attacks of slight hæmoptysis, and had condemned himself

to phthisis. His temperature was raised, and reached 102° or 103° every night. I could find no definite physical signs, and the scanty sputum contained no bacilli. I comforted him with the prospect that the mischief was not tuberculous, sent him away for a good holiday in the Riviera, and in two months he came back in perfect health, and has continued so and in active work ever since. I have recently seen another similar case in which rapid recovery is taking place, but as the patient is not yet quite well I can hardly quote it. Influenza stands, no doubt, in an important and interesting relation to phthisis. Influenza attacking a person with lungs already damaged, from whatever cause, is a serious malady, and so it is in phthisis, whether the disease be at the time active or stationary. Moreover, influenza often starts into fresh activity old tuberculous disease which has long been quiescent. Besides all this influenza undoubtedly develops an increased susceptibility to tuberculosis, so that phthisis may develop after, and apparently in consequence of, an attack of influenza in a person who was, as far as could be judged, previously quite healthy. I have seen several instances of this kind, and as far as my experience goes in such cases, the disease runs a very rapid course.

Pleurisy.—Pleurisy has not, in my experience, been common unless connected with pneumonia, to which disease pleuritic effusions have been almost without exception due. Metapneumonic empyema has, I believe, been more than usually frequent, but the cases have almost invariably done well.

Laryngitis.—Laryngitis, which is a common sequela, and a very troublesome one, rarely produces dangerous symptoms, though a stray case or two of great severity are recorded. When severe it runs a protracted course ; this is said to be due to a special form of fibrinous infiltration, which is very dense and takes weeks to resolve. Though I have seen many cases of troublesome laryngitis, I have not met with any instances of the kind described.

Aphonia.—Aphonia has not been rare, occurring generally in women, and due to the nervous prostration and debility. A few of these cases have lasted many weeks.

Hemorrhages.—Hemorrhages are not infrequent in the course of influenza. They are usually slight, occasionally recurrent, and though of interest are of no special importance. They may occur from the nose, stomach, bowels, respiratory organs, and uterus. At times an almost hemorrhagic condition seems to be set up, and the hemorrhage may be profuse. I do not know of any instance in which it has caused really grave consequences, but several in which it has led to serious inconvenience. In previous epidemics such hemorrhage was not infrequent, but in this they have been distinctly rare. Hæmoptysis has been

already referred to, and it has been stated that it does not necessarily imply tuberculosis. Slight epistaxis has not been uncommon. Of hæmatemesis I have myself seen nothing, but of menorrhagia several instances have come under my observation.

Treatment.—Under ordinary circumstances little is necessary except to keep the patient warm and quiet in bed during the febrile stage, and in his room for a few days after. A little alkali or acid mixture with a few minims of tincture of nux vomica will be sufficient. The most important part of the treatment of all cases is that of the post-febrile stage, in which the temperature, the pulse, and respiration are subnormal. The two symptoms which are prominent in influenza are the pains and the depression, and these deserve special consideration. For the pains there are four favourite drugs—salicylate of soda, antipyrin, phenacetin, and antifebrin. Of these for ordinary use I prefer salicylate of soda. It is effectual, and does not produce the depression which full doses of any of the others are liable to cause. Antipyrin, when given frequently in full doses, increases the depression, and has sometimes produced even alarming collapse. For the neuralgic and rheumatic pains which often follow influenza salicylate of soda again is the most reliable drug, but the ordinary methods of treatment are usually sufficient. The depression during the acute stage is partly general, partly central, and partly cardiac, and in all cases toxic in origin. Some relief is given by obtaining free relief of the bowels ; at any rate, the depression is greater when the bowels are confined. Strychnine or nux vomica is the best general stimulant, acting as it does in part upon the cardiac and respiratory centres in the medulla. In the collapsing forms it is especially upon this drug, administered by the mouth, or, in urgent cases, subcutaneously, associated with ether or other diffusible stimulants, that chief reliance is placed. I think I have seen more than one serious case saved only by subcutaneous injections of strychnine repeated as often as required. For cardiac attacks I think there is no better drug than citrate of caffeine given in five-grain doses three or four times daily, and generally in association with some strychnine. The sodio-salicylate of caffeine for subcutaneous injection is also a most valuable and convenient remedy. Strophanthus has not satisfied me as well as caffeine, and digitalis is, I think, harmful. It is upon the two drugs, strychnine and caffeine, that I chiefly rely in the treatment of influenza depression, and in association with other stimulants they have but rarely failed me. Complications and special symptoms must be treated on general principles as they arise. They call for no special comment.—*The Lancet, April* 28, 1894, *p.* 1047.

2.—ANTIPYRETIC EFFECTS OF EXTERNAL APPLICATIONS OF GUAIACOL.

By Alfred H. Carter, M.D., F.R.C.P., Senior Physician to the Queen's Hospital, Birmingham.

Among the latest and most efficient antipyretics external applications of guaiacol deserve an important place. It seems that Dr. Sciolla was the first to whom the idea occurred of employing guaiacol in this way. His observations attracted considerable attention, especially in France, and further communications have appeared from Drs. Bard, Guinard, Robillard, Solis-Cohen, Lépine, Stolzenburg, Da Costa, Linossier and Lannois, and others. From these observations there is no doubt that guaiacol has energetic properties as an antipyretic.

The following remarks are based upon 114 personal trials of the drug made upon 13 cases (febrile phthisis 9, acute pneumonia 2, healthy persons 2). Eight observations were made on normal temperatures; in the remaining 106 the temperature ranged from 99° to 103°. Pure guaiacol was used 68 times; creasote (containing about 90 per cent. of guaiacol), 46 times. The liquid drug was rubbed into the axilla at 5 or 6 p.m., the quantity usually employed being ℥j, but in a few instances only ℥ss was used.

The temperature was reduced in 104 instances. There was no reduction in 10 instances, but in 5 of these the temperature was normal at the time of application. The action of guaiacol was distinctly more energetic than that of creasote. With guaiacol the temperature fell 6° twice (in the same case), from 5° to 6° eight times, from 4° to 5° nine times, and from 3° to 4° thirteen times. With creasote the temperature fell once 5·2°, once 3·2°, and from 2° to 3° nine times. The lowest point to which the temperature fell was 96° three times, 96° to 97° ten times, 97° to 98° thirty-two times. The lower temperatures were obtained in every instance by guaiacol. The fall usually began at once, but occasionally there was a slight rise of temperature for the first hour, after which the fall was abrupt. The shortest time occupied in reaching the minimum temperature was one hour, the longest time was five hours, and the average time was about three hours. As a rule, after reaching the minimum, the temperature rose again abruptly to a point sometimes above, and sometimes below, what it was previously to the application. In two cases of phthisis the mean daily temperature was persistently reduced, and in one of these the temperature became practically normal under the continued use of the drug.

In addition to the fall of temperature other phenomena were pretty constantly observed. A short time after the application the skin of the part began to smart and burn, sometimes only very slightly, while in some few so severely that it was compared to burning with a hot iron. The smarting almost invariably passed off in the course of an hour, but when the application had been repeated for several nights in succession it sometimes caused mild superficial inflammation, followed by slight desquamation of the cuticle. Inflammatory trouble was, however, quite exceptional; it more often occurred with creasote than guaiacol, and quickly subsided on suspending the application for two or three nights.

Marked general sweating was almost invariable; it was often copious, and occasionally so profuse as to saturate the bed-clothes. The sweating was not always proportionate to the fall of temperature, although this was the rule. On six occasions there was a marked fall in temperature with very little if any sweating; on one occasion the temperature did not fall at all (but rose 1·8°), and yet there was sweating; while on three occasions (normal temperature) there was neither fall of temperature nor sweating.

When the temperature fell below normal there were symptoms of collapse, but only once to a serious extent. In these cases there was always very profuse sweating, an indescribable sense of sinking, and occasionally a feeling of nausea. Apart from the actual danger of collapse, the symptoms are extremely distressing to the patient, and under such circumstances the applications should either be discontinued or repeated with much smaller doses.

The abrupt rise of temperature after its reduction has already been referred to. When the fall was considerable, and especially when the minimum reached was below normal, this abrupt rebound of fever was very commonly associated with shivering, and sometimes with a decided rigor. In every instance it was found that the temperature was rising rapidly during the rigor. This symptom cannot therefore be regarded as a sign of collapse, but probably is the result of nervous shock brought about by sudden invasion of fever, such as we are familiar with at the outset of all acute specific diseases which begin abruptly.

The frequency both of the pulse and respirations was reduced as the temperature fell, but not to an extent greater than would be accounted for by the diminished fever.

The quantity of urine secreted was greatly increased, with a corresponding fall in specific gravity, and both an absolute and a relative diminution of solid constituents. As the fever returned, the urine gradually recovered its previous character. Lannois and Linossier state that after the external application

of 2 grammes of guaiacol, elimination of the drug by the kidney began in a quarter of an hour, reaching its maximum from one-and-a-half to four hours, then decreasing rapidly for six or seven hours, till at the end of twenty-four hours only a trace was observed in the urine. They state that no less than 55·5 per cent. of the amount applied may be eliminated in the urine. This shows that the drug really enters and passes through the system.

I do not propose in the present communication to deal with the therapeutic uses of external applications of guaiacol in any detail, but the observations above recorded suggest the following considerations:—(1) That used in this way guaiacol is a valuable addition to our list of trustworthy antipyretics; and though the tendency of recent experience is greatly to restrict the usefulness of this class of remedies, yet whenever the employment of an antipyretic is indicated, guaiacol offers advantages which deserve attention. (2) That, by virtue of its diaphoretic effects, it may possibly be of value as an eliminant in adynamic conditions arising from the retention within the system of toxic substances. (3) That, by reason of its antimicrobic properties and the large amount of the drug which can in this way be introduced into the system, it is likely to be of service as an internal antiseptic, especially in the treatment of phthisis.

It should be pointed out that for therapeutic purposes smaller quantities of the drug are desirable than those employed in this investigation. Probably ℥20 to ℥30 would be generally sufficient. For continued use smaller doses would be desirable than when used to meet a temporary and urgent indication.

What is the explanation of the antipyretic effect of guaiacol applied externally? At present no certain answer can be given to this question. To some extent it turns upon the answer to another question: Does guaiacol so applied enter the system, and, if so, does it enter it in any considerable proportion? Bard and Guinard say that it does not appear in the urine, and is not absorbed, and accordingly attribute the effects to a reflex action on the nerve centres through the peripheral nerve endings. They further say that exactly analogous results were obtained in rabbits, when a liquid preparation of mustard was substituted for guaiacol. It seems hard to believe that this view is correct, otherwise how is it that creasote, which is so much more irritating than guaiacol, has such a much feebler antipyretic effect? Also, the purer the preparation of guaiacol the less is the local irritation, and yet the greater is its antipyretic effect.

If the observations of Lannois, already quoted, on the large elimination of the drug in the urine are to be trusted, it seems far more reasonable to suppose that this action of guaiacol is due to its internal effects after absorption. Moreover, we find

that everything that facilitates absorption increases the effect of the drug—*cæteris paribus*. Whether the drug acts directly upon the central nervous heat centres, or whether it acts upon them indirectly by some neutralising effect on the fever-producing toxins there is as yet no evidence to show.

It is impossible to disregard altogether the antipyretic effect of the sweating which so generally attends these applications of guaiacol. But since there is no regular relation between the intensity of sweating and the fall in temperature, and since sweating is occasionally absent though the temperature falls, it seems clear that we must look elsewhere for a complete solution of the problem.—*British Medical Journal, July* 7, 1894, *p.* 8.

3.—ON THE TREATMENT OF PYREXIA IN TYPHOID FEVER.

By Sir William Broadbent, Bart., M.D.

[Sir William Broadbent, in the course of the Cavendish Lecture for 1894, speaks as follows on the treatment of the pyrexia of typhoid fever]:

The high temperature having been long regarded as a deadly influence, it was natural that the antipyretic class of substances should be hailed as bringing us exactly what we wanted in the treatment of typhoid fever. According to my experience they have not only failed us in this respect, but have done positive harm. They have, undoubtedly, the effect of relieving the initial headache, but this has appeared to me to be a very delusive benefit. One of Sir William Gull's pregnant sayings was that the removal of symptoms is not the same thing as the relief of disease. The antipyretics not only knock down the temperature, but the patient also—sometimes fatally—and I have often in cases admitted into hospital diagnosed not only the disease but the remedy. My conclusions are based entirely upon observation, but it has interested me to learn that Roque and Weill have found out that antipyrin arrests the elimination of toxines by the urine without preventing their formation. Quinine has done good in large doses as against high temperature, but its benefits have often been dearly purchased at the expense of vomiting, noises in the ears, deafness, and confusion. The most efficacious means of controlling the heat of fever, however, is the application of water to the surface of the body. Tepid or cold sponging is part of the recognised duty of the nurse, and is practised night and morning even in the mildest cases. Where the temperature ranges high the sponging should

be done more frequently, and it is well to time it so as to anticipate the rise which usually takes place at a certain period of the day, which will be pointed out by the chart. In such cases it will be useful to supplement the sponging by a continuous wet compress over the abdomen, frequently renewed or moistened, or kept cold by fragments of ice distributed over it. While, however, sponging, the wet compress, the ice-bag applied to the head, and similar measures are useful and grateful, they fail to exercise the desired control over the temperature when the fever is at all severe. A resource of greater power is the bath, and it must be said that wherever this has been systematically tried the mortality of typhoid fever has been considerably reduced. The diminution in the death-rate was particularly conspicuous in the hands of Brand, who systematised the bath treatment. It fell from 25 per cent. to 9 per cent. Professor Tripier, of Lyons, has had equally favourable results, and the latest statistics which have come under my notice, those of Professor Osler in the Johns Hopkins Hospital, are entirely confirmatory. Dr. Cayley, again, has borne emphatic testimony to the value of bathing, and my own experience while physician to the London Fever Hospital, and in the occasional employment of the bath in consultation practice since that time, has convinced me that it saves life. The good results of the bath treatment have long been known to the profession in this country, but it has not come at all into general use. The principal reason, no doubt, is that the cold bathing is usually very distressing to the patient, that the labour involved is great, and that in the general hospitals it is difficult to make the special provision required and to supply the additional number of nurses. There has not, moreover, been the same contrast between the results with and without bathing in this country as abroad, because our mortality was not so high. Brand's system is to place the patient in water at 70° or 65° for twenty minutes every three hours so long as the temperature in the rectum rises in the intervals to 102·5°, cold water being at the same time applied to the head. The patient is dried immediately or only after an interval, according to the effect of the bath on the temperature and according to the strength of the patient, and he is very lightly covered. On the continent, as I have understood, the patient gets into and out of the bath himself, and no harm seems to come of this; here and in America he is lifted carefully in and out, which adds enormously to the trouble, and at the London Fever Hospital the process was often rendered less disagreeable to the patient by cooling down the bath gradually from 90° or 85° to 70° or 65°.

I will not occupy your time by describing in detail the immediate effects of the bath; the general result is a mortality

of 7 per cent. as compared with an average of 15 to 20 per cent. My own conclusion was that the disease ran a somewhat protracted course and that relapses were more frequent. Professor Osler's experience appears to have been similar as regards relapses. I will not detain you by discussing the explanations given of the good results of the bath treatment, but it is an interesting, and to me a new, fact that cold bathing is found to promote the elimination of toxines by the urine. Only one observation I would make which is that the bath acts not only by abstracting heat, but by the impression made on the nervous system, and in hyperpyrexia the shock of sudden immersion in ice-cold water or of violent affusion with ice water is the more important action of the two, and is, indeed, essential to the effect.

The latest development of the bath treatment of typhoid fever destined, as it seems to me, to supersede all other is the continuous bath which has been employed for several years with remarkable success by Dr. Barr, of Liverpool. I have watched his records with great interest, and was so greatly impressed by the results that before appearing here I determined to see for myself the methods by which they were obtained. I paid a visit, therefore, to the Northern Hospital at Liverpool, where I was shown cases under treatment and had the opportunity of examining the apparatus employed. This consists of what Dr. Barr calls a tank—a magnified bath with perpendicular sides raised on short legs. The size is important, not only as allowing the patient plenty of room, but because a considerable volume of water is the more easily maintained at an equable temperature. The usual temperature is 95°, but it may be lower when the fever is high and does not yield, 90° being the lowest which Dr. Barr has found necessary in ordinary circumstances. In hyperpyrexia the bath may be emptied, and cold or iced water dashed or run over the patient. The patient reclines on an Ilkley couch framework over which is stretched a loosely woven material which easily allows of the passage of the water through its meshes. In the newest form of the apparatus the patient can be raised on his couch completely out of the water by means of a pulley arrangement. A thermometer floats on the water, by a glance at which the nurse sees what its temperature is, and when necessary she adds hot or cold water, as may be required. At first this was done by buckets, and any excess was removed, or the tank was emptied by means of a syphon, but now the hot and cold water are supplied by pipes, and a large exit pipe four inches in diameter passes from the middle of the floor of the tank immediately under the nates of the patient. The shoulders are supported by an air cushion upon which, again, rests another small, ring-shaped air cushion

for the head, and the body is covered by a thin blanket which is brought over the chest up to the neck, as it is difficult to keep the upper part of the chest under water, and the blanket keeps it warm and moist; over the tank is a waterproof sheet. The patient is not necessarily taken out of the tank when the bowels act or the bladder is emptied. Advantage is taken of his removal when the tank is cleansed, once in the twenty-four hours, to obtain an action of the bowels if possible, but at other times the evacuations are passed into the water. The provision made for minimising the contamination is that under the nates there is a circular aperture in the webbing on which the patient rests, and immediately below is the large exit pipe by means of which the water receiving the stools can be run off at once before they are diffused in the bath; a considerable depth of water under the patient is consequently necessary. It would be easy to adapt to the margin of the aperture a flexible funnel communicating with the exit pipe, which would still further diminish the liability to contamination. The three patients I saw under tank treatment appeared to be perfectly comfortable; the skin of the hands and feet was white and corrugated, as is seen in washerwomen, but elsewhere the integument had a natural appearance. The tongue invariably becomes moist within twenty-four hours, and any abdominal distension present is said to subside and delirium and tremor to quickly yield.

Dr. Barr has furnished me with complete statistics of typhoid fever treated by him. These would be out of place here. The general result is that out of 180 cases, 43 of which had the continuous bath, seven patients died, not quite 4 per cent., and two deaths could not fairly be attributed to the fever.

There is no reason to suppose that the typhoid fever of Liverpool is of a less severe type than elsewhere, and the number of cases is sufficient to establish a *primâ facie* conclusion as to the results, and if there is a method of treatment by which the mortality of typhoid fever can be reduced to 2 or 3 per cent. the only question which remains for us is whether it is generally applicable. In my judgment there is no doubt as to this. I have had some experience in the ordinary bath treatment, and it appears to me that the trouble involved in the continuous bathing is much less. I hope, therefore, that a tank-room will soon be provided at every hospital, and I see no reason why a portable tank should not be constructed, provided with means of renewing and removing the water, and with all other requisite appliances, which might be kept at the different nursing establishments, to be sent out to private houses with nurses trained in their use. It should be added that Dr. Barr reserves the continuous bath for the more severe cases, but the principle of continuous abstraction of heat by water is carried

out in all. The abdomen is covered by a wet compress which is frequently moistened, and only a single thin blanket is allowed as bed-clothing. The extremities, however, may have extra covering, and may be kept warm by hot bottles, if necessary. Having analysed, so to speak, typhoid fever into the factors which enter into its symptomatology, and considered the methods by which the different processes making for the injury of the patient and tending to his destruction may be counteracted, I may conclude by bringing them together again, as they are likely to arise in the course of a case, giving briefly the treatment. The patient will, of course, be put on liquid nourishment, the amount and kind of which and the time of its administration will be clearly indicated. There will probably be a few days in which the diagnosis will be uncertain, during which it may seem that an aperient is called for. Let this take the form of one or two grains of calomel, followed by a mild saline, such as phosphate or sulphate of soda. The resulting motion and every other stool which the patient passes should be carefully inspected. Should there be severe headache, not relieved by cold to the head, ten or fifteen grains of phenacetin may be given at night once or twice perhaps. As soon as the diagnosis is formed cold or tepid sponging will be ordered, or, rather, seeing the excellent results of this practice in the hands of Dr. Barr, a wet apron would be applied to the abdomen and kept moist instead of reserving it for special indications, the bed covering being extremely light. In no case should an eiderdown or other impervious coverlet be permitted. If the maximum temperature in the twenty-four hours does not exceed 102° or 102·5° F. no other treatment will be needed; but even then unremitting vigilance must be exercised to the last day of the disease, a report of food, drink, sleep, evacuations, temperature, &c., being submitted by the nurse at each visit. When due care is exercised it is not likely that diarrhœa will be induced by undigested milk or improper food. Should it occur and be attributed to intestinal sepsis liquor hydrargyri perchloridi with quinine or fractional doses of calomel would be given, and this failing to check the undue frequency of the action of the bowels, a starch and opium enema would be administered after each loose motion. With a higher temperature cold wet applications would be employed more assiduously and more extensively, and liquor hydrargyri perchloridi (half a drachm to one drachm), or one-third of a grain of calomel might be given with one or two grains of quinine, especially if the temperature rose suddenly or pursued an erratic course suggestive of intestinal sepsis, and this whether there were septic diarrhœa or not, the effects, of course, being carefully watched. Supposing the temperature to defy ordinary measures

and to remain at or near 105° in spite of the wet sheet, ice compresses over the abdomen, the ice cap, &c., affusions of ice-cold water would be necessary or a large enema of iced water might be administered. This is on the understanding that the tank treatment is not available, and that the difficulties attending the employment of the cold bath prevent recourse to it. When Dr. Barr's tanks can be had, the continuous bath will be preferred in all cases in which the temperature reaches 103°.—*The Lancet, August* 25, 1894, *p.* 426.

4.—ON THE ANTISEPTIC TREATMENT OF TYPHOID FEVER.

By J. Burney Yeo, M.D., F.R.C.P., Physician to King's College Hospital.

[In discussing the antiseptic treatment of typhoid fever, Dr. Burney Yeo says :]

My first attempts in this direction in the treatment of enteric fever were made with sulphurous acid, the antiseptic agent employed with so much success by Dr. Wilks, of Ashford, and it seemed to have a remarkable effect in modifying the temperature curve and in causing a decided reduction of the pyrexia.

I had, however, been long impressed with the great efficacy of free chlorine as an antiseptic agent in septic conditions—or rather a mixture known as euchlorine, and containing free chlorine, as obtained by the action of strong hydrochloric acid on powdered potassium chlorate, especially in the treatment of the grave forms of throat ulceration occurring in cases of scarlatina maligna. I therefore determined to use this mixture in the treatment of typhoid fever, and to give quinine in combination with it, believing, as Professor Bouchard has maintained, that quinine acts as a general antiseptic in this disease.

The mixture I use is made in the following manner :—Into a twelve-ounce bottle put 30 grains of powdered potassic chlorate, and pour on this 60 minims of strong hydrochloric acid. A greenish-yellow gas is at once liberated. Close the bottle with a cork, and agitate the mixture gently until the bottle is filled with the gas ; then pour water into the bottle, little by little, closing the bottle and well shaking at each addition, until the bottle is filled.

We have in this solution several antiseptic agents all in a state of solution and readily absorbable, which is one of its great merits over antiseptics not in solution—free chlorine,

hydrochloric acid, potassium chlorate, and probably one or two by-products. In twelve ounces of this solution I cause 24 to 36 grains of quinine to be dissolved, and some syrup of orange-peel added to make it more agreeable to take ; and of this, to adults, I order one ounce to be given every two, three, or four hours, according to the severity of the case.

I have adopted this method of treatment of all cases of enteric fever that have come under my care, both in my service in King's College Hospital and in my private practice during the past ten years, and I have had uniformly good results except in two cases.

Let me call attention to some of the effects of this treatment, which may be observed in most cases in which it is applied. (1) There is a remarkable cleaning of the tongue and mouth. The aspect of the tongue in cases so treated is frequently quite unlike the usual tongue of enteric fever. (2) The foul, putrefactive odour of the fæces is rapidly removed if the remedy be given sufficiently often and in sufficient quantity, for this fluid and perfectly soluble antiseptic certainly reaches and passes through the small intestine, as the nurses constantly report the odour of chlorine in the alvine evacuations. (3) Another important effect of this treatment is a sustained depression of the febrile temperature—a continuously favourable effect on the pyrexia. (4) In certain cases, especially in young subjects, and if the treatment has been begun quite early in the case, the average course of the fever appears to be notably shortened. (5) There is another very striking effect of this treatment, and that is that the patients seem subjectively so much less disturbed by the fever poison. Their physical strength and intellectual clearness are far better maintained than by any other method of treatment with which I am acquainted. In many cases the nervous system shows none of the signs of febrile intoxication which we have been accustomed to see. Finally, their convalescence is more rapid and complete, and troublesome sequelæ, so far as my experience has extended, are unknown.

The effect upon the pyrexia of this "antitoxic" method of treatment has appeared to me to be very different from that of the so-called "antipyretic" drugs ; these produce usually an almost immediate fall of temperature, often with profuse perspiration and considerable depression of the action of the heart ; they have, as it were, a wholly independent action of their own. Not so with the quinine and chlorine solution ; the effect on the temperature is slowly developed (with such moderate doses of quinine as I advocate), and it may take forty-eight hours before any very notable effect on the temperature is produced ; indeed, the temperature may actually rise a degree, or even more, in the first twenty-four hours of

its administration, which appears to me to indicate that the antipyretic effect is due to a general antagonising influence on the pyrogenic poison in the tissues, rather than from any immediate or direct effect on the heat-regulating mechanism.

Intestinal antisepsis cannot be carried out thoroughly without great consideration, care, and observation in the matter of feeding the patient. For this purpose we must note carefully what digestive and absorptive activity exists in each individual case. In many this will be found to be *extremely small*. Let this be well noted, for the neglect to do so is responsible for much avoidable mischief. The fault usually lies in the too free administration of milk. I have again and again seen milk break down utterly as a food for typhoid patients. In some cases I have seen it vomited as a firm, cheesy mass soon after it has been taken into the stomach, and in many others I have observed the maintenance of diarrhœa to be dependent upon the irritation of masses of milk curd passing through the inflamed and catarrhal intestine. These are obvious instances of the failure of milk as a food. There are others, far more common, in which it will be found, if the alvine dejections be carefully examined and estimated, that nearly, if not quite all, the casein of the milk taken as food is passed undigested, not as coarse curds, but as a fine deposit from the so-called "pea-soup" stools. Remember that it is useless and injurious in these cases to give food that is not absorbed. Estimate accurately the absorptive capacity of the patient. If he cannot absorb milk at all give him some other food. If he cannot absorb four pints in the twenty-four hours give him two, and if he cannot absorb two pints give him one, and if he cannot absorb more than one-half a pint give him one-half a pint.

Give all food very dilute. Milk should be diluted with twice its bulk of water. We wish for antiseptic and eliminative purposes to give as much pure water as the patient will drink; give it then as a diluent of his food. When milk, however small in quantity, absolutely disagrees, very dilute, freshly-made clear soups, in the making of which some aromatic herbs have been used, is the best substitute. Dilute albumin water, made with the white of an egg, is also then serviceable. Give whatever intestinal antiseptic you may be using at the same time as the food, so as to keep it from putrefactive decomposition.

The antiseptic principle, when applied to the feeding of typhoid patients, necessitates then the administration of food in a dilute liquid form—food that remains liquid in the body as well as outside it, and that is not prone to be suddenly rendered solid by chemical change, as undiluted milk is. I am not suggesting that milk should not be used in a diluted form whenever it is found to be well tolerated and freely absorbed,

but I would urge the necessity of exchanging it for other food when it is seen that much solid though finely reduced casein is passing in the motions.

As to the use of alcoholic stimulants, I believe the general tendency is to give them too early and in too large quantities. They are needed, in moderation, toward the end of the most severe and protracted cases; but the less severe cases do better, I think, without any. I have used, in association with moderate quantities of alcohol, in protracted cases, with marked cardiac debility, *infusion of coffee* with, it has seemed to me, more marked and sustained stimulation of the heart than when alcohol alone has been given. We have too much neglected those excellent cardiac stimulants—tea and coffee—in the treatment of fevers.

We must not expect that success will uniformly attend the application of the method of treatment I have been advocating —*i.e.*, an antitoxic or antiseptic method—unless we are enabled to apply it early in the disease.

One great advantage in establishing complete intestinal antisepsis, and in attempting for this purpose to give just as much food as will be absorbed and no more, is that we are enabled, in the advanced period of the disease, to keep the intestinal canal at rest, a most important indication in connection with the intense ulcerative processes which are usually present there in severe forms of typhoid. I am accustomed to give for this purpose small enemata of two or three ounces of starch mucilage, each containing about ten grains of tannin and five grains of Dover's powder. This not only allays intestinal irritability, but it is useful in quelling nervous excitement also.

I object to the free use of depressing antipyretic agents merely as reducers of temperature, as they simply attack a symptom, and they should be reserved exclusively for those cases in which the symptom they attack is for the moment the all-important symptom of the disease, viz., for states of hyperpyrexia. For this purpose I occasionally, but very rarely, use a small dose of phenacetine (five grains). Even in such small doses I have been concerned at the great cardiac depression it at times occasions.

With regard to the routine cold bath treatment of typhoid, for my own part, I am disposed to leave it, almost without comment, to those who like it. Personally I have seen calamitous results occasionally follow its indiscriminate application. I do not doubt its essential value in certain cases of hyperpyrexia. It, however, attacks a result of the disease only; it is not wholly free from risks of its own, as I can from my own experience testify; it is difficult to apply continuously,

and unless applied continuously, often fails to reduce temperature, except for a brief period. As a tiresome and inconvenient method of treatment, its great claim to adoption was the superior results it was stated to yield. The method I advocate has yielded, in my own practice and in that of others, better results, and I therefore prefer it.—*The American Journal of the Medical Sciences, June*, 1894, *p.* 644.

5.—BONE-MARROW IN THE TREATMENT OF PERNICIOUS ANÆMIA.

By T. R. Fraser, M.D., F.R.S., Professor of Materia Medica in Edinburgh University.

Although this communication deals with only one case of pernicious anæmia treated with bone-marrow, the curative effect seems sufficiently evident to justify the publication of the case, especially as an opportunity occurred for testing in it the value of the chief remedies hitherto used in the treatment of this disease.

The patient, A. R., a gardener, 60 years of age, entered the Royal Infirmary on September 30, 1893. His symptoms were frequent vomiting and diarrhœa, œdema of the feet and ankles, moderate and irregular pyrexia, dimness of vision, retinal hemorrhages, anorexia, dyspnœa, and, latterly, complete prostration. The illness had existed for about four months.

Although I was desirous at once to treat this patient with bone-marrow the condition was so serious a one that, in the absence of experience regarding the therapeutic value of bone-marrow, I considered it advisable to administer, in the first instance, some of the remedies usually employed in pernicious anæmia. Only after they had failed in producing benefit was bone-marrow given.

For the sake of brevity I shall divide the history of the patient into eight periods, which correspond with the treatment adopted in each period.

First Period, two weeks, no medicinal treatment. During this period the hæmocytes of the blood varied from 1,860,000 to 1,460,000 per cub. mill., and the hæmoglobin from 28 to 30 per cent., the specific gravity being 1038. There was great distortion in the shape and variation in the size of the hæmocytes, which did not form rouleaux. Retinal hemorrhages were present in both eyes.

Second Period, two weeks and a half; ferrous chloride 6 to 12 grains daily. The hæmocytes and hæmoglobin steadily fell to 900,000 per cub. mill. and 20 per cent. respectively, and the specific gravity to 1036.

Third Period, eight days; arsenic (15 to 30 min. of liquor arsenicalis daily) was given in addition to 12 grains of ferrous chloride daily. Still further deterioration occurred in the hæmocytes and hæmoglobin, the former falling to only 843,000, and the latter to 18 per cent., but the specific gravity remained at 1036

Fourth Period, three weeks; arsenic and iron were continued in the above doses, but ox bone-marrow was now also given by the mouth, uncooked, and in the quantity of 3 ounces daily.

An almost immediate improvement occurred, so that at the end of this period the hæmocytes numbered 1,800,000, the hæmoglobin amounted to 35 per cent., and the specific gravity was 1042. The patient now began to recover strength; he could remain out of bed for several hours each day, and the appetite was greatly improved.

Fifth Period, twenty-six days; ox bone-marrow, arsenic, and salol (15 to 30 grains daily). The improvement was continued. The hæmocytes rose to 2,470,000, the hæmoglobin to 55 per cent., and the specific gravity to 1047. The patient felt much stronger, and his complexion was distinctly pink and had almost entirely lost its original yellow hue. He had also gained in weight.

Sixth Period, thirty-two days; ox and calf bone-marrow and salol (30 grains daily). The improvement was still further continued, so that the hæmocytes reached an absolute maximum of 4,130,000 though they afterwards fell to 3,400,000; the hæmoglobin rose with the hæmocytes to 75 per cent. and also fell to 70 per cent., and the specific gravity became 1058. The blood had now a healthy appearance. It could flow readily from a small puncture, it formed fairly good rouleaux, and the red cells were more uniform in size and fewer of them were distorted. The patient was now able to do light work in the ward without fatigue; the alimentary system was perfectly healthy; œdema, pains, headache, pyrexia, and the venous *bruits* in the neck had disappeared; and the skin had a healthy appearance.

Seventh Period, one month; ox and calf bone-marrow and ferrous chloride (6 to 12 grains daily). The hæmocytes remained, with some oscillations, as about 3,400,000; the hæmoglobin averaged from 70 to 75 per cent., on one occasion reaching 80 per cent., and the specific gravity remained steadily at 1059. The patient felt strong and enjoyed assisting in ward work, such as carrying coals up a long flight of stairs. He remained out of bed all day; there were no subjective

symptoms even on considerable exertion, and "hæmic" venous and cardiac *bruits* were no longer audible. Ophthalmoscopic examination of the eyes showed that all traces of retinal hemorrhage had disappeared.

Eighth Period not concluded (when this paper was communicated to the International Congress); ox bone-marrow, iron and salol. The improvement was maintained so that the hæmocytes reached 4,000,000, the hæmoglobin 85 per cent., and the specific gravity 1060. The patient was now practically in a normal condition. His appetite was good, and his appearance that of a healthy man.

An examination of the graphic representation of the progress of the case shows that no benefit was obtained—that, indeed, deterioration occurred—during the prolonged administration of iron and arsenic in both medium and large doses; but that the remarkable improvement which occurred was produced only after the administration of bone-marrow had been commenced while it continued to be produced during periods in which neither arsenic nor iron were being administrated.

The demonstration of a curative influence by bone-marrow may appear to be somewhat obscured by the introduction of salol into the treatment, and a further examination of the therapeutic value of this substance in pernicious anæmia appears, indeed, to be suggested. The introduction of salol was due to the urgency of the case requiring that no description of treatment should be neglected in whose favour any theoretical or experimental evidence had been advanced. Since, however, this communication had been made to the International Medical Congress, the patient was treated with only bone-marrow for a period of twenty-seven days (Period x), and the improvement was well maintained to the end of this period.

He was discharged from the hospital because of his urgent wish to return to work as a gardener, for which he declared himself more able than he had been for the last five or six years, and, to use his own expression, he felt "as if he had been made over again." On the day when he left the hospital (May 19, 1894), the hæmocytes numbered 3,900,000 per cub. mill., the hæmoglobin was 78 per cent., and the specific gravity 1058; the hæmocytes were nearly uniform in size, only a few of them showed slight "tailing," and no megalocytes were present; there was no excess of leucocytes or of blood plates, and good rouleaux were formed on the microscope slide.

It may be worthy of note that before medicinal treatment had been commenced, and in the earlier periods of treatment when the patient was receiving large doses of iron and arsenic, the blood plates were conspicuously deficient in number, while soon after the administration of bone-marrow had been

commenced, a great increase occurred in their number, which was followed by a reduction to a moderate number during the later periods when the blood had been restored to a nearly normal condition.

The frequent failure of therapeutic measures in pernicious anæmia confers an interest upon any remedy which appears capable of controlling this malignant disease, even although the evidence is derived from one case only, and notwithstanding the circumstance that temporary improvement occasionally, though very rarely, appears to occur spontaneously. The facts now stated appear to justify the hope that bone-marrow will be found to have a remedial value in some at least of the cases of pernicious anæmia.

It is with much satisfaction that I express my obligations to Mr. D. A. Welsh, M.B., C.M., resident physician in my wards, for the efficient aid he has given me in conducting the numerous microscopic and other observations that were made in connection with this case, and to which only a general reference has been made in this abstract.—*British Medical Journal, June* 2, 1894, *p.* 1172.

6.—ON EPIDEMIC JAUNDICE.

By William Rankin, M.D., Churchtown, Londonderry.

Early in July, 1893, a lad, aged 11 years, came to me complaining of feeling generally out of sorts. He had been troubled with headache, sick stomach, vomiting, and no desire for food for about a week previously. He had not kept to bed, and had walked over a mile to see me that morning. The tongue was furred, and the skin and conjunctivæ tinged yellow. Looking upon the case as one of jaundice due to ordinary gastro-duodenal catarrh, I treated it as such, and thought no more about it. On that day fortnight two other members of the same family—one a girl aged 13, the other a boy aged 10—appeared, complaining of a precisely similar train of symptoms. They were the three young members of this family, and they were the only persons in the house affected. These two received the same simple treatment, and they also quickly recovered. I may mention here that my whole medicinal treatment consisted in two sharp calomel purges at an interval of three days, and a mixture of nitro-muriatic acid and nux vomica given for a week or ten days. At that time I had a number of cases of a similar nature, and they all yielded rapidly to these simple remedies. During the months of July and August I saw eleven cases of jaundice in young persons,

and all within a limited area—I should say not more than a mile long and half a mile wide—and I am quite sure there were other cases in the same locality at the time which did not come under my observation. When one case occurred in a house, as a rule other members of the family became affected, but in no instance did I see jaundice in an adult at this time, and occasionally—as in the three cases first referred to—all the children in the house suffered. They all occurred in the low-lying part of my district. The disease seemed to have exhausted itself during the months of July and August. It was evidently of an epidemic nature, but as regards the precise cause I could not then satisfy myself. I may mention, and I have since seen the theory advanced, that it occurred to me at the time that it might have been a sequela of influenza. Influenza, however, at least influenza in epidemic form, was certainly not in the neighbourhood at the time.

During March and April, 1894, an almost similar series of cases have cropped up in the high-lying part of the district. The first case I saw, early in March, was a boy aged 10 years, one of a family of six children, who came to me suffering markedly from jaundice. In this family the whole six children one after another became affected, and other cases occurred in the immediate neighbourhood, all within a radius of half a mile. The last two cases were in children of different families, but neighbours. Both these cases I saw on the same day, April 7. At the time these different cases occurred I was not aware of the existence of what is generally recognised as influenza in the district, nor have I since seen any cases of influenza. In almost every instance the friends had been able to satisfy themselves quite readily as regards causation. One had seen some repulsive sight, while another had been where there was a bad smell, as they said, and yet another had taken a drink out of a dirty pool; some had eaten too heartily and some had eaten something which had "gone against them," and one at least had got a fright. The two cases which I saw on April 7, occurring in different families, were both ascribed to the patient having eaten eggs on Easter Sunday. In regard to treatment, the popular notion was quite in keeping with the views of the majority in regard to causation, some going so far even as to apologise for seeking medical aid at all, saying they understood the affection was either incurable, or at most yielded only to some magic "charm" or "cure," the secret of which was known but to a few—mostly old women. In almost all the cases the stools had been observed to be pale and clay-coloured, and generally of stiff consistence. In some, however, there was diarrhœa, and in these the appearance would be deceptive. The colour of the urine had also been noted in most cases. Suffice it to say that these were cases of jaundice, and jaundice in a comparatively

simple form. I kept the patients on milk diet. The medicinal treatment I have already indicated. In no case did I find it necessary to confine them to bed. There was seldom any rise of temperature or quickening of the pulse. They were generally out of sorts for a week or ten days, but recovery was rapid and complete. Whether the treatment adopted had much to do with the cure I am not at all certain, but of this I am satisfied—that other cases which received no treatment, or at most a dose of senna or castor oil, also recovered, and recovered rapidly.

Here are a series of cases in regard to which one cannot say they belong wholly to either the obstructive or the non-obstructive form. If to the obstructive they must have been cases of gastro-duodenal catarrh, starting probably as a primary catarrh of the stomach, which extended to the duodenum and thence to the gall-duct, which became blocked with exudation. The only admissible causes in these cases would be "errors in diet" or "catching cold." Possibly they may have been due to errors in diet; possibly they may have been due to catching cold, but if so, to me it seems very remarkable that so many cases should have occurred within a comparatively short time, and that they should have been limited to a comparatively small area. If, on the other hand, these cases belong to the non-obstructive form, they must come under the division "Poisons in the blood interfering with the normal metamorphosis of bile," and under the sub-division "Poisons of a specific nature."

Now these cases all occurred in young people (eldest 13 years). Sometimes all the children in the house became affected but in no case an adult. They occurred in a particular district of country limited in area, but not having a common water-supply, and they occurred, as far as I can make out, when there was no influenza, or, at least, not what is commonly recognised as influenza. Influenza, however, assumes so many different forms that it is quite possible to have it attacking chiefly the gastro-intestinal tract instead of the bronchial or nervous, as under ordinary circumstances. We might thus have jaundice due to a specific poison and yet of the obstructive form. But, it may be said, is it at all likely that you can have jaundice due to the poison of a specific fever and yet unaccompanied by fever? In all the cases which I saw the jaundice had already developed when I was called in, and it is quite possible that, even had there been a premonitory febrile stage, it had passed off, for, as a rule, when jaundice develops the temperature and pulse fall. I am forced to the conclusion that, like influenza, we have here to deal with an affection of a distinct specific nature, fortunately of a mild type and not attended with the many and serious consequences so often met with in influenza. As regards the exact nature of the poison I am unable to form any definite

opinion. Whether it is the influenza poison or whether the affection is a sequela of some obscure form of influenza or whether due to a poison of its own are questions on which I am still undecided, but that the disease is due to a poison of some kind is, I think, beyond doubt.

[Since writing this paper four fresh cases have come under my notice, all in the same district of country as those before referred to, now making a total of 23 since the beginning of March last.] —*British Medical Journal, May* 26, 1894, *p.* 1122.

7.—THE TREATMENT OF GRAVES'S DISEASE.

By James J. Putnam, M.D., Professor of Diseases of the Nervous System, Harvard Medical School.

As regards the treatment of Graves's disease, the following facts are to be borne carefully in mind:—First, in the early stages of the disease it is often possible to effect an improvement or cure by the removal of the exciting cause, combined with the use of such influences as will secure the most absolute physiological rest to the nervous system. Occasionally chlorosis seems to act as such an exciting and removable cause (Robertson); at other times the irritation of some certain nerves; while in other cases the only obvious factor has been a strong emotional excitement which needs to be counteracted by profound quiet, combined with tonic treatment. Second, one cannot review the history of the therapeutics of this affection carefully without becoming convinced that a long step toward recovery is made if one can bring to an end any one of the series of partial causes which are tending to maintain the disease. It is on this principle that we can explain the beneficial effect of the treatment of the nasal cavity, the removal of the thyroid gland, and the measures specially designed to quiet the action of the heart. The fact that by partial thyroidectomy we are able to remove a certain amount of secreting tissue of the gland, does not, I think, at all prove that the thyroid disease was the principal or only cause of the affection. What we probably accomplish in that way is the removal of a part of the excitations which combine to keep all the unstable nerve centres in an irritable state.

The records of the result of operation on the thyroid seem very favourable so far as they have been reported. Out of more than 50 cases there have been three or four deaths, and in almost all the rest a greater or less degree of improvement has resulted, frequently a substantial cure. Nevertheless, the

operation should count as a dangerous one, especially in cases of weak heart. In two cases observed by myself, however, the results have not been so favourable as I had been led to hope. One patient died at the end of a week, though apparently doing well. The other patient is better than before the operation, though by no means well. The thyroid at first diminished in size, but is now increasing again. I have also seen a case where a relapse occurred two years after the operation.

It happens not infrequently that an operation is followed by paresis or paralysis of one recurrent laryngeal nerve. This happened in my first case, and the paralysis has not passed away, though the voice has returned. An operation has been devised to prevent this, which consists in leaving the back part of the gland with its attachment, and removing the anterior half (Miculicz).

It is very desirable in making further studies of the effects of the operation that surgeons should pay special attention to the symptoms of the first few days after the operation, in order to test the correctness of the theory which I have advanced that a patient suffers from thyroid poisoning during that period.

The indications for and against surgical operation have been very recently, though briefly, discussed by Rehu.

He thinks that operative treatment of the goitre in one or another way is the treatment *par excellence* for Graves's disease, but that if thyroidectomy is undertaken in advanced stages of the disease, or when the heart is excessively weak and irritable, it is attended with great danger. Two of his patients died from cardiac failure shortly after the operation, and it is noteworthy that in one of these cases the operation consisted only in ligaturing the thyroid arteries, so that there is no reason to accuse thyroid poisoning as having been the cause. Another patient died of pneumonia, and a fourth died on the operating table from the effects of tying the stump of the gland to check hemorrhage. Rehu has seen benefit, in light cases and in early stages of the disease, from injections of iodoform, and recommends ligature of the arteries for very vascular goitres.

As a rule, however, he thinks resection is the best method, and that it should not be delayed until the patient is *in extremis*. Personally, I do not feel that the last word has been said with regard to the dangers of the operation or as to the means of anticipating or avoiding them.

As regards the drugs which have proved of benefit, the two most important are probably iron and belladonna. It has been suggested that belladonna acts by diminishing the secretions from the diseased thyroid gland, but it is also well known to quiet the heart in certain conditions independently of the other

mode of action. I have not seen much benefit from its use. Picrotoxin was recommended by Bartholow, but Robertson tried it without any effect. Ergot occasionally seems to be useful, and iodide of mercury ointment, or some other form of iodine ointment, seems to act beneficially in reducing the size of the enlarged thyroid gland. Mental and physical rest are, however, besides thyroidectomy and the treatment of the chlorotic and anæmic conditions, undoubtedly the most effective.

A patient of mine who had been severely ill for many years began to improve the moment when she commenced to lie in the open air many hours daily, and this practice she continued with benefit both winter and summer. Eventually the thyroid, which had never been more than moderately large, practically disappeared, the heart's action became almost normal, and the exophthalmos much less, so that the patient has returned to moderately active life.—*Brain*, *Part* 56, 1894, *p.* 225.

8.—THE SERUM THERAPEUTICS OF DIPHTHERIA.

By Professor E. Roux, Chef de Service of the Institut Pasteur and President of the French Committee for the Study of Diphtheria.

Upon February 1, 1894, we commenced to treat diphtheria cases at l'Hôpital des Enfants Malades. The chiefs of the staff, MM. Jules Simon, Descroizelles, and Grancher, were desirous of giving every facility to our undertaking. We desire here to record our gratitude. We had several horses well immunised; we could, therefore, use serum in large quantities without fear of running short. During preceding years MM. Roux and Yersin, MM. Martin and Chaillou, had studied diphtheria in the same wards. We were, therefore, familiar with the type of disease presenting itself at the hospital, and consequently were well prepared to instantly appreciate the modifications that the new treatment was about to impart in its usual course. Every day we visited the wards and treated all the children in whatever stage we found them. No selection was made, so that the gross results during the months of treatment may be set side by side with those previously recorded; they are comparable. Nothing was changed in the nursing of the patients; the local treatment remained the same (glycerine and salicylic acid, boracic acid washes). The only new element introduced was the serum; it is, therefore, to this alone that the changes that occurred must be attributed. The statistics of diphtheria are recorded with

great care by the director, on the one hand, and by the lady superintendent, on the other, and they supply all the facts for comparison. Lastly, our experiments were made from February 1 to July 24, during the winter months, when diphtheria is common and severe, and during the summer months, when it is notably less frequent. Besides this there is in Paris another children's hospital receiving diphtheria cases, l'Hôpital Trousseau; serum was not used there, and it will serve us for purposes of comparison. The total mortality of children admitted to the diphtheria wards during the last four years gives a mean of 51·71 per cent. From February 1 to July 24, 1894, the serum treatment was applied to 448 patients admitted to the hospital, and there were 109 deaths, a mortality of 24·5 per cent. All conditions remaining the same, the difference between 51·71 per cent. and 24·5 per cent. is the measure of the benefit conferred by the treatment. During the same months of February, March, April, May, and June, 1894, 520 children were admitted into the Trousseau Hospital who did not receive any serum treatment; of these, 316 died, a mortality of 60 per cent. It cannot be said that the epidemic during which we experimented was a benign epidemic; but it is desirable to distinguish between angina and croup requiring tracheotomy.

Angina.—During the last four years the mean mortality of angina has been at l'Hôpital des Enfants Malades 33·94 per cent. During the time of treatment from February to July 1894, the mortality has been 12 per cent. During the same time at l'Hôpital Trousseau it was without the use of serum, 32 per cent.

Croup operated upon.—The mean mortality of the last four years at l'Hôpital des Enfants Malades was 73·19 per cent. During the months of treatment from February to July it was 49 per cent. During the same time at l'Hôpital Trousseau it was, without the use of serum, 86 per cent. The above figures are absolutely comparable; they are gross numbers that are eloquent and proclaim the good effect of anti-diphtheritic serum.

As thus stated these figures do not take into account the fact that children that are not diphtheritic are admitted into the diphtheria ward block. They may have angina with false membranes, sometimes even croup, but without the Klebs-Löffler bacillus. The affections caused by other bacteria are much less dangerous than true diphtheria—their mortality is slight; in this same ward block of l'Hôpital des Enfants Malades MM. Martin and Chaillou have observed 79 such cases, with only one death, and M. Tezenas, at Lyons, has described 146 such cases, with three deaths. These false diphtherias are not uncommon; one-fourth at least of the children admitted to the wards are not suffering from diphtheria. It is, therefore, desirable to deduct these cases, as they attribute to serum a proportion of success

not due to it. In exact statistics only angina and laryngitis recognised as due to diphtheria by bacteriological examination should be admitted into calculation. Accordingly, from the 448 children treated we must deduct 128 that did not have diphtheria; there remain 320, of which 20 succumbed upon admission into hospital; they received no serum and cannot be reckoned amongst those treated. In fact, from February 1 to July 24, 1894, only 300 diphtheritic children entered the wards, and it is upon these that the action of the serum must be ascertained to be appreciated. These 300 diphtheritic children treated by serum yielded 78 deaths, a mortality of 26 per cent. The earlier work of MM. Roux and Yersin, and MM. Martin and Chaillou established the fact that in the same hospital, the mortality of children attacked by diphtheria, and confirmed by bacteriological examination, was 50 per cent. By the comparison of these corrected figures, which only include authenticated cases of diphtheria, it is possible to appreciate how many lives the serum has saved. To all children we systematically administered, at the time of admission, 20 c.c. of serum at one insertion under the skin of the side of the abdomen. If the bacteriological examination showed that the patient was not diphtheritic the injection was not repeated; 128 children affected with various forms of angina were thus treated without the least inconvenience. It even appeared that the angina was relieved in a number of cases. They remained some days exposed to contagion without being infected, a proof of the prophylactic value of the serum. If the injection is properly made into the subcutaneous cellular tissue it is not painful and in a few minutes the serum is absorbed. In diphtheritic children twenty-four hours after the first injection we gave another of 20 c.c. or 10 c.c. which was generally sufficient to complete the cure. The pulse and temperature guided us—if they remained high we repeated the injection; so long as the temperature does not fall below 38° C. the curative effect is not complete, it must be hastened by a supplementary injection. The mean weight of the children treated was 14 kilos; from the first injection they received a little more than a thousandth part of their weight of serum. The minimum quantity of serum used was 20 c.c. and the maximum was 125 c.c. During convalescence, some days after the injection of the serum, ill-defined eruptions sometimes supervened, most frequently resembling urticaria. These eruptions, unaccompanied by any fever, were due to the serum. Besides these, other eruptions were observed, causing a febrile condition; they were noticed specially in diphtheria cases with complications, and they appeared to be classible with the infectious erythemas frequently occurring after angina. The principal modifications produced by the serum upon the course

of diphtheritic angina are the following. The general condition remains good or improves very quickly, provided the treatment be not commenced at too advanced a period of infection. The pale and leaden faces are scarcely seen in the wards; the expression of the children is more lively and more cheerful. The duration of the disease is curtailed, the appetite quickly recovers, and the wasting is slight. The complications following diphtheria are more rare; we have observed a few paralyses of the soft palate of short duration, one case of paralysis of a lower limb, and one case of total paralysis supervening during the convalescence of a child admitted struggling on the sixth day of the disease. Three children died from syncope—one in less than twenty-four hours, and another in less than twenty-six hours after admission, and the third succumbed five days after the commencement of the treatment. The false membrane ceases to grow within twenty-four hours of the first injection, and detaches itself in thirty-six or forty-eight hours, at the latest by the third day. The diphtheritic bacillus disappears from the throat at the same time as the false membrane. Most frequently cultivations cease to produce diphtheritic colonies from the third to the fifth day. The effect of the serum upon the local lesion is therefore most manifest. The temperature falls promptly under the action of the serum. In the less severe angina cases the fall often commences on the morrow after the first injection and is not delayed beyond the second day. The defervescence is abrupt, as if the disease had been suddenly checked. Before this treatment we had never observed these sudden falls of temperature, which constitute an excellent prognostic sign. A single injection of serum is not sufficient to bring down the temperature of patients affected with the grave form of angina; the defervescence only commences after the second or third dose, and takes place by lysis. The pulse only returns to normal two or three days after the temperature. In severe angina, after repeated injections of serum the number of pulsations diminishes, but only for a time; they increase to 120, and remain so during several days before falling to normal. Since the use of serum we no longer notice during convalescence those irregularities of the pulse that were formerly the rule. Albuminuria is less frequent and of shorter duration amongst diphtheritic patients treated with serum.

It is well known that angina in which the diphtheria bacillus is associated with the streptococcus is of graver import than pure diphtheritic angina. In these complicated cases the serum is less efficacious; it only produces good results when injected in strong and repeated doses. In spite of energetic intervention the disease is of longer duration, and the temperature and pulse only return slowly to normal. No abrupt fall of temperature

occurs here; the defervescence is always gradual. Broncho-pneumonia is a formidable complication, always threatening in these cases of associated diphtheritic angina. It is desirable, therefore, statistically to separate these cases from those of pure diphtheritic angina. Amongst our 300 diphtheritic children 169 had angina, and 120 were affected with pure diphtheritic angina; of these 9 died, or 7·5 per cent. If seven children who were less than twenty-four hours in the wards are deducted there remain 115 cases of pure angina, with 2 deaths, a mortality of 1·7 per cent. Forty-nine patients had angina associated with the streptococcus; they yielded 12 deaths, a mortality of 24·2 per cent. If four children who were less than twenty-four hours in the hospital are deducted there remain 45 cases of associated angina, with 8 deaths, a mortality of 17·7 per cent. All the deaths are met with in the group of diphtheritic angina associated with the streptococcus. These cases of angina numbered 35, with 12 deaths, and a mortality of 34·2 per cent. Deducting four children that were less than twenty-four hours in the hospital there remain 31 cases, with 8 deaths, a mortality of 25·8 per cent. This same class of diphtheritic angina with streptococci showed in the same hospital under the care of MM. Martin and Chaillou a mortality of 87 per cent. When diphtheria extends to the larynx and tracheotomy is necessary the disease is much more serious. It is then necessary to give more abundant and more numerous injections. In the great majority of children the trachea and larynx rapidly clear themselves of the false membrane and the cannula can be withdrawn much earlier. We withdraw it from the third or fourth day after the operation. The mortality of children treated is caused by pseudo-membranous bronchitis and above all by broncho-pneumonia, which is the most formidable of complications. It is common when the diphtheria bacillus is associated with staphylococci and streptococci. Then the disease takes a rapid course and the serum is of much less effect. As to this point, clinical observations agree perfectly with experimental results.

We have treated 121 children affected with diphtheria that have been subjected to tracheotomy; 56 died, a mortality of 46 per cent. During preceding years croup not treated with serum by MM. Martin and Chaillou yielded a mortality of 68 per cent. It is desirable to distinguish between pure croup and associated croup. The cases of pure diphtheritic croup numbered 49, with 15 deaths, a mortality of 30·9 per cent. Deducting four children that were less than twenty-four hours in the wards, there remain 45 cases, with 11 deaths, a mortality of 24·4 per cent. The cases of associated croup numbered 72; they yielded 41 deaths, a mortality of 58·3 per cent. Deducting 10 children

that were less than twenty-four hours in the wards, there remain 62 cases of associated croup, causing 31 deaths, about 50 per cent. The mortality previously had reached 80 per cent. To these 121 cases of croup operated upon, 10 other cases must be added in which the operation was not performed. The children were admitted to the hospital without any false membranes in the throat. Nevertheless, cultivations upon serum yielded numerous colonies of the Kleb-Löffler bacillus ; they, therefore. had diphtheritic croup from the onset. The cough was hoarse, the voice faint ; the difficulty of respiration caused one to think that the little patients should undergo tracheotomy. Under the influence of the serum the obstructed inspiration diminished and only returned at intervals, the children threw up the false membrane, and at the end of two or three days the respiration was normal. We must not hasten to operate upon a child with obstructed inspiration ; we must inject the serum and wait as long as possible. Since the use of serum the number of tracheotomies has much diminished at l'Hôpital des Enfants Malades. In 1891 and 1892, of 100 children affected with diphtheria 50, at least, were subjected to tracheotomy ; whereas of 300 children treated with serum 121, about 40 per cent. only, were operated upon. How many children may be spared tracheotomy if the serum were administered sooner? We can even say that with the use of serum tracheotomy should, in the great majority of cases, be replaced by tubage. It is now no longer a question of leaving a tube in the larynx for days ; it will suffice more frequently to retain it during twenty-four or forty-eight hours to prevent imminent asphyxia and to gain time until the false membranes detach themselves. Tubage is the complement of the serum treatment of the future, tracheotomy will be the exception, and greatly to the benefit of the children.

What is the local treatment to be recommended to assist the serum? We proscribe absolutely the use of all caustic and poisonous substances. We are content to use two or three times a day a wash of boracic water, or, better, of water to which are added fifty grammes of "liqueur de Labarraque" per litre. No carbolic acid, no sublimate ; we prefer boiled water to antiseptic liquids which cannot be swallowed without danger to children. There is quite sufficient diphtheritic poison in the body without adding others. The statistics that we have here published would have appeared more favourable if the provision for diphtheria at l'Hôpital des Enfants Malades had been better cared for. Isolation is impossible there, and one may judge of the conditions under which we worked when we tell you that amongst 300 diphtheritic patients 85 had concurrent diseases—33 measles, 13 scarlet fever, 6 tuberculosis, 3 whooping-cough, 3 varicella, and 39 broncho-pneumonia. The last affection is

especially formidable amongst children that have undergone tracheotomy. It is contagious, and a patient affected with it infects others if he remains in the same ward. We have seen disastrous instances of this contagiousness. Since the month of April, in order to prevent in some measure this pulmonary infection, we have injected into the trachea, after tracheotomy, two c.c. or three c.c. of oil of sweet almonds containing five grammes of menthol and a gramme of guaiacol per cent. These injections, repeated every day as long as the cannula remained *in situ*, certainly warded broncho-pneumonia off several of our patients operated upon and contributed to cure some that were affected. But menthol is only palliative; it is necessary in order to avoid broncho-pneumonia to isolate children suffering from it, as well as those affected with diphtheria associated with staphylococci and with streptococci. Simply by the arrangement of wards it is possible to avoid all those complications that invaded our patients without hindrance, and which, it must be admitted, did not facilitate the action of the serum. In spite of all, the anti-diphtheritic serum has lowered the mortality in hitherto unknown proportions, and we must pay homage to the discovery of M. Behring, who, in the future, will give us something even better.—*The Lancet, September* 22, 1894, *p.* 677.

9.—ON A PECULIAR FORM OF INTERMITTENT FEVER OF A PYÆMIC CHARACTER.

By Julius Dreschfeld, M.D., F.R.C.P., Professor of Medicine in Owens College.

During the last few years I have observed several cases of an acute febrile disturbance, where the fever had more the character of intermittent fever, but which certainly were not malarial but rather pyæmic in character.

That the disease is microbic in its origin there can be little doubt. All the cases I observed were only seen by me in consultation, and the difficulties of exact bacteriological observation in such cases are sufficiently evident. The post-mortem examination of one case, however, gave some important bacteriological results. Altogether I saw six cases; they were all men, their ages varying from 23 to 56. All, with two exceptions, had enjoyed good health up to the onset of the disease—one had suffered for some time from the symptoms of alcoholism, and one had had glycosuria for several years before the febrile attack set in. Not one of them had ever lived in

a tropical or malarial climate, nor had any of them ever had malaria, rheumatic arthritis, or an injury. In four out of the six cases the disease was fatal.

The principal symptom noticed in each was a pyrexia, not unlike that seen in intermittent fever—namely, a rigor, during which the temperature would rise to 103° F., 104° F., and sometimes to 107° F. This was followed by the hot stage, and this was succeeded by the stage of sweating; the perspiration, in some of these cases, was so profuse that the clothes of the patient, and even the bedclothes, were soaked through and had to be changed.

The pyrexial attack was followed by an afebrile period, during which the temperature was normal or subnormal, and during which time the patient felt quite well. In some of the cases the temperature between the rigors was somewhat above normal, but yet the patient did not appear to suffer any inconvenience. The rigors occurred, in a few cases, regularly once a day, generally in the evening; in other cases they occurred at very irregular intervals. Sometimes there were two or three rigors within 24 hours; at other times there was no rigor for several days. This irregularity occurred in the same patient.

Of the other symptoms noticed I may mention abdominal pain, which was present, in three out of the six cases, from the first. The pain was not localised nor did it occupy the same position in all—in two it was over the region of the liver, in one over the epigastrium, and in the fourth a mild diffuse pain was felt over the abdomen. In some the appetite remained good throughout; in others there was occasional vomiting, and in one more persistent vomiting; constipation was present in all. In none of the cases was there noticed any affection of the lungs or heart. The pulse was steady and slow during the afebrile period, and would quickly rise to 100 and more during the fever stage. The spleen was found slightly enlarged in all cases. The urine (except in the case where there was antecedent glycosuria) showed little that was abnormal. Only in one case did I detect albumen and hyaline casts in the urine, which was passed about one hour after the sweating stage, and this occurred several times in the same case. The diazo-reaction was absent in those cases (three) in which it was tried. An important and noteworthy symptom, in three out of six cases, was an enlargement of the liver, but this came on some time after the onset of the disease. Two of these terminated fatally (and in one of these very slight jaundice appeared a few days before death), and the liver was found to be the seat of suppurative hepatitis. In the third case jaundice came on about six weeks after the onset of the disease; the liver

enlarged enormously; but, after a time, both the liver intumescence and the jaundice gradually disappeared, and the patient made a satisfactory recovery.

Having given narratives of the cases, Dr. Dreschfeld proceeds to say:—There can be little doubt that the cases recorded bear a close resemblance and show a marked uniformity in the symptoms. Though the prominent symptom in all is the intermittent fever, yet the cause is certainly not due to a malarial poison, for the patients did not live in a malarial country, and none of them ever had had malaria; the spleen was only very slightly enlarged, and increased in size only with the progress of the disease, and quinine, arsenic, and even methylene blue, which was tried in the last case, had no effect whatever on the pyrexia, nor did the attack of pyrexia show any periodicity.

The cases must be looked upon as pyæmic in nature; and in support of this view may be cited—(1) The suppurative hepatitis which was found in two of the fatal cases; and (2) the relation of the disease to some pyæmic affection, namely, pylophlebitis and ulcerative endocarditis. In the latter affection especially we have a form which is chiefly characterised by rigors, as pointed out many years ago by Wilks, and more recently by Osler (*Practitioner*, 1893), where daily rigor may occur for many months, and where eventually the patient may recover. (3) The presence of numerous micro-organisms in the liver in one case (I will not lay stress on the presence of a few micro-organisms in the blood of one patient, probably they were extraneous, as I did not find them in the blood of two other patients examined for that purpose).

Whilst there can thus be little doubt that the disease is pyæmic in character, and due to some micro-organism, the questions which immediately arise from this—namely, what is the character of the organism, what its life-history, by which way does it enter the human body, how does it produce the symptoms, and why do some cases recover whilst in others a suppurative hepatitis results?—can as yet not be answered.

It appears highly probable that the micro-organism enters the system through the digestive tract, that either through the portal vein or the lymphatics it reaches the circulation, and that either it, or toxins produced by it, causes the peculiar symptoms, and that if arrested in its course, say in the liver, and not destroyed there, it may give rise to suppurative hepatitis, though it is possible that if suppurative hepatitis occurs this may be due to a second infection.

As to the nature of the micro-organism, we have as the only data the numerous clusters of small thick bacilli which appear in close relation to the bile passages, and in their appearance were not unlike the bacterium coli commune.

No attempt was made to obtain pure cultivations, as the liver was not sufficiently fresh when it reached the pathological laboratory; but from the arrangement of the micro-organisms, and their large number, there can be little doubt that they bore some relation to the hepatitis. Whether they reached the biliary passages by a retrograde movement from the gall-bladder, or whether they reached the bile passages by passing along the portal vein to the liver, could not be made out, though I feel inclined to look upon the latter mode of invasion as the more probable.

As to the treatment of this peculiar affection I can say but little. The various antipyretics, quinine, sodium salicylate, antipyrin, antefebrin, and phenacetin were tried, but none of them appear to have had any good effect. Large doses of quinine and arsenic, which often give marked results in ulcerative endocarditis, showed no immediate effects in these cases. Methylene blue given in one case certainly appeared to aggravate the symptoms. The recovery of the two cases was probably due to the fact that the patients could take a very fair amount of food, and that in this way the patients had sufficient strength to resist the devastating effect of the micro-organisms, whose natural term of life eventually expired.

I have failed to find a record of similar cases. Osler, in his treatise on "Medicine," when speaking of pyæmia, states:—"On two or three occasions I have met with intermittent pyrexia, persisting for weeks, in which it seemed impossible to give any explanation of the phenomena; cases in which tuberculosis, malaria, or septicæmia could be almost positively excluded."

From Sir Wm. Roberts, and from my colleague Dr. Leech, I have learned that they have observed similar cases, and it is evident, therefore, that the affection is not unknown, but I have failed to find any definite record of such cases, and I have placed the cases on record, as probably their publication may lead to further observations.—*Owens College Medical Chronicle, April*, 1894, *p.* 4.

10.—ON THE SCARLATINA-LIKE RASHES IN CHILDREN.

By Henry Ashby, M.D., F.R.C.P., Physician to the Hospital for Children, Manchester.

Among the puzzling cases which I have recently seen, are those which, during the recent influenza epidemic, have resembled in their general symptoms this protean disease, and yet have been accompanied by a rash closely resembling scarlet fever. Several of these cases appeared to belong to an influenza

series; the general symptoms were those of influenza; there were no scarlet fever cases in the neighbourhood, and yet, to the surprise of everybody, there appeared a red, diffuse, punctiform rash. In one of these cases there was pleuro-pneumonia. The association of influenza with a red rash has been noticed before, though, as far as I know, it has not attracted much attention.

The disease, which in my experience at times most closely resembles mild scarlatina, is the scarlatina form of rubella. Rubella or rotheln, as is well known, usually resembles measles rather than scarlet fever, and the resemblance, as some of us know to our cost, is rather a close one. But in some epidemics rubella more closely resembles scarlet fever than it does measles. Whether there are really two distinct diseases included under the name of rubella which do not protect from one another, or whether there is only one disease which is modified by influences of which we are ignorant, so as at one time to resemble measles and another time to resemble scarlet fever, is at present impossible to say.

The very close resemblance there may be between rubella and scarlet fever was forcibly brought to my mind some years ago by finding that what were apparently mild cases of scarlet fever, and which were certified as such by several medical men and sent into the fever ward attached to the Children's Hospital, contracted attacks of undoubted scarlet fever a few days after their admission. The cases when seen for the first time in the ward appeared to be cases of mild scarlet fever in which the temperature was only raised a degree or two; the rash was for the most part fading, but there was a history of it having been bright red. Soon after having my attention called to these cases similar ones made their appearance at the out-patient department. There was an absence for the most part of vomiting; the fever was only slight. A sore throat was mostly complained of, and there was slight tonsillitis to be seen on examining the fauces. The rash was general, bright red and punctiform, exactly resembling that of a mild case of scarlet fever. By the help of the experience gained at the hospital we soon learned that the epidemic, which was tolerably widespread and exceedingly like scarlet fever, was not so in reality, but belonged to the milder disease. Diagnosis in this epidemic was only possible by recognising that we were in the presence of an epidemic of a mild disease in which there were no bad cases, no complications or sequelæ. In an epidemic of scarlet fever, while some cases may be mild and practically feverless, others are severe and typical enough to render the diagnosis easy. The epidemic above referred to fortunately occurred at a time when scarlet fever was not specially prevalent, and consequently the difficulty of diagnosis was not great.

Epidemics more or less similar have been observed in this country, notably by medical officers to our public schools, as the medical papers from time to time give ample evidence. In a recent paper, Clement Dukes has tabulated the distinguishing characteristics between "epidemic roseola" and scarlet fever in a convenient form for diagnosis. When the symptoms of two different but very similar diseases are thus contrasted, the resulting picture is necessarily rich in blacks and whites, and it would be easy to criticise certain statements and relate cases to show where the characters given failed to distinguish between the two diseases or enabled a diagnosis to be made. For instance, in my cases described above the rash was exactly alike in the two diseases, and the slight desquamation which followed exactly similar. Certainly also in many cases of rubella there is no enlargement or tenderness of the cervical or other lymphatic glands, and, on the other hand, in out-patients especially, enlarged glands altogether unconnected with any zymotic disease may be present. In rubella there may also be sore throat exactly similar to the tonsillitis of scarlet fever, and in the latter disease there may be no cleaning of the tongue, giving it the well-known "strawberry" appearance. In many cases there is nothing for it but to suspend our judgment, and to isolate or treat the cases as if they were scarlet fever.

Difficulty in diagnosis principally occurs in isolated cases, or in the first case or two coming under notice. When other cases occur the difficulty soon disappears, inasmuch as if the epidemic is one of rubella, the long incubation, namely, eighteen to twenty-one days, would be noted, and the cases would all be those of a mild disease practically without complications. If the epidemic were one of scarlet fever the incubation would be short, namely, two or three days, and there would be certain to be some typical cases with a well-marked rash, and temperature that could not well be mistaken for the milder disease. Has rubella, when it assumes the scarlatinal type, a shorter incubation than when it assumes the commoner or measles type? This is an interesting point, but one that I cannot answer from my own experience.

Some other diseases, such as diphtheria and cases in which suppuration is in progress, are apt to be accompanied by a red rash. The so-called "surgical scarlatina" is in most cases scarlatina occurring in a subject under the care of a surgeon; but in cases in which there is an excessive amount of suppuration present, there may be a red rash due to septicæmia. Certainly in bad septic cases a red dusky rash is not uncommon. It occurs in cases of scarlet fever where there is much suppuration about the neck and fauces, the rash looking at first sight like a second scarlet eruption, but it is apt to be more patchy and of

a duskier hue. A similar rash may be seen in empyema cases, where there is much pus formation. The rash is no doubt due to the absorption of poisons from the seat of suppuration. The rash seen in severe cases of diphtheria is no doubt also septic, though it is now a well-recognised fact that a membranous exudation exactly resembling true diphtheria may be present on the fauces in scarlet fever, but investigations have shown that Löffler's bacillus is absent. Epidemics of diphtheria have been described, in which a red rash resembling scarlet fever has been present ; but I have never seen such cases, though I have not frequently seen a rash more patchy and rather erythematous than punctiform in cases of diphtheria in which there has been much faucial inflammation and cellulitis. The inflammatory form of diphtheria is sometimes exceedingly like scarlet fever, beginning with vomiting and high fever ; especially if there were a dusky rash septic present, the likeness would be still more close.

The only "drug eruption" which, as far as I know, is likely to be mistaken for scarlet fever is the erythematous eruption that sometimes follows the administration of belladonna or its alkaloid. A temporary blush is not uncommon, but a general erythema lasting a day or two is certainly not often seen. One of the best marked belladonna rashes I ever saw was in a boy of 10 years, a patient of Dr. Wilson's, of Cheadle, who had been taking seven minim doses of the tincture for several days. In this case there was a well-marked red rash covering the chest and trunk, and also on the limbs, and, though not punctiform, at first sight suggested scarlet fever. The fact that the temperature was normal and tonsillitis absent, negatived scarlet fever.

Antipyrin certainly at times produces a rash, but I have never seen a diffuse red rash produced by this drug, the rash is more of the measles or nettle rash type. This is a matter of some interest, as I have already referred to the fact that a red rash has been noted in influenza, and antipyrin is a favourite drug in this disease. I have seen copious crops of miliaria make their appearance after sweating produced by antipyrin, and clusters of papules with healthy skin between.

An erythematous rash may certainly follow the ingestion of food that disagrees, or in mild and also severe cases of ptomaine poisoning. Vomiting and diarrhœa in a child naturally suggests gastro-intestinal disturbance, and the presence of a more or less dusky rash due to ptomaine poisoning may be perfectly consistent with this view. But the association should also suggest scarlet fever in an early stage, and death may occur before a diagnosis is arrived at. On several occasions I have been asked to make post-mortems for the coroner in cases of

children who died in a few hours after taking an "ice" or some brawn or tinned meat, with symptoms of ptomaine poisoning. But in these cases the evidence went to show almost certainly that they were cases of malignant scarlet fever.

I have purposely left till last the question of desquamation which is apt to follow all diffuse rashes, especially where there has been fever. On this subject I fear I hold very unorthodox opinions as to the value to be attached to a shedding of the cuticle as evidence of a previous attack of scarlet fever. In my belief the public, and, to a large extent, the profession, vastly over-estimate the importance attaching to the process, and give it altogether a fictitious value. I am sometimes shown small tags of thick cuticle on the soles of the feet and palms of the hands, which are separating from the skin, and have been expected to look upon this as conclusive evidence that a recent febrile attack was scarlet fever. Now most certainly typical attacks of scarlet fever will be followed by "peeling" after the eruption stage is over, in a way seen after no other disease; but mild cases often do not desquamate at all, or differ in no way from other febrile attacks, such as influenza, pneumonia, or typhoid. After a few days or a week in bed any one's feet or hands may peel, especially the thick skin referred to. If the practitioner has had the opportunity of seeing the rash and watching the course of the attack, and has been unable to make a diagnosis, any subsequent desquamation that occurs is useless as a factor in the decision. In a case seen for the first time when desquamating, the value of the evidence afforded by the peeling would depend upon the history of sore throat and rash, and the presence of some sequela, such as nephritis.—*The Owens College Medical Chronicle, June*, 1894, *p.* 162.

11.—ON THE DENTAL MANIFESTATIONS OF GOUT.

By Edward C. Kirk, M.D., Philadelphia.

The coexistence of the gouty diathesis with certain forms of suppurative gingivitis, known to dentists as pyorrhœa alveolaris, Rigg's disease, &c., has long been observed both by medical men and dentists. Sir A. Garrod and Sir Dyce Duckworth have each called attention to the dental evidences of gout, the latter describing what he terms the "buck tooth" of gout as characteristic of that disorder. This same buck tooth which Sir Dyce Duckworth describes, it is interesting to note, is invariably found to be produced by a localised pyorrhœa

alveolaris, the faulty alignment and subsequent extrusion of the tooth from its alveolus being the result of that disorder. Recently, new light has been thrown upon the causal relationship of the gouty diathesis to the local dental trouble, by the investigations of Dr. C. N. Peirce, of Philadelphia, published in a recent issue of the *International Dental Journal* and the *Dental Cosmos*. He has shown, through clinical analyses made at his request by Professor Congdon, of the Drexel Institute, Philadelphia, that calcareous deposits taken from the roots of teeth lost from pyorrhœa alveolaris contain, besides the usual calcium carbonate and phosphate, a considerable quantity of uric acid and calcium and sodium urates. From this he draws two important and seemingly justifiable conclusions: firstly, that these deposits upon the tooth root and in its ligamentous pericementum are not salivary but hæmic in their origin, for he has further shown the existence of these deposits in cases where there was no solution of continuity of the attachment of the gum tissues at the cervical portion of the tooth, hence there was no possible opportunity for the saliva to gain access; and, secondly, the presence of uric acid and urates so derived and deposited upon the tooth root and in the ligamentous structures surrounding it, taken in connection with the subsequent clinical history of pyorrhœa alveolaris, especially in view of the gouty relationship so frequently previously observed, warrants us in considering the disease in question as but one more of the many local expressions of the protean constitutional disorder known as gout or lithæmia. As further evidence of the correctness of this view, nearly all of the cases which after thorough local treatment have been subjected to intelligent constitutional treatment directed towards the elimination of uric acid and its compounds have progressed rapidly towards a cure, all local gingivitis disappearing, with no tendency to return. The exhibition of lithium in some of its combinations in connection with a proper dietary regimen has proved most beneficial in these cases. In a number of pyorrhœa cases I have found a marked acidity of the secretion from the mucous glands of the lip. The pouring out of this secretion brings about localised areas of decalcification of the enamel, and later of the dentine, producing the condition of the teeth known to dentists as erosion.

In seeking for some constitutional remedy for this abnormal condition of the labial mucus the administration of potassium bitartrate or common cream of tartar suggested itself from its well-known ability to produce an alkaline reaction of the secretions, particularly of the urine, when given in small repeated doses. The idea then presented itself to enhance the solvent power for uric acid of the alkalinity so produced, by

combining a definite amount of lithium with the tartrate, in order to express, so to speak, its solvency in terms of lithium instead of potassium. This was done by exactly neutralising the acidity of the potassium bitartrate with lithium carbonate. This resulted in the production of neutral potassium-lithium tartrate, the chemical analogue of Rochelle salt. Further, in order to eliminate the potassium element altogether, so as to obtain the highest solvent efficiency of the lithium, a lithium bitartrate was made, the salt when produced presenting all of the physical properties of potassium bitartrate, of which it is the chemical analogue. In fact, the lithium bitartrate was indistinguishable in appearance from ordinary potassium cream of tartar; it might therefore be described as a lithium cream of tartar. The two salts described have been given a limited therapeutic test in gouty cases, those selected being of the irregular or suppressed type of the disorder. The lithium Rochelle salt (lithium potassium tartrate), being a neutral salt, is devoid of any irritating property to the gastro-intestinal mucous membrane—a feature that is desirable in cases of gastric or intestinal gouty irritability. My testing of the preparation has been confined solely to the class of cases alluded to, and these have not included any presenting classic symptoms of true gout with articular inflammations, tophi, &c. A question may arise as to why there should be any superiority of lithium bitartrate over the citrate. As to this, I do not know more than that I have used both the citrate and carbonate freely, and the bitartrate has given me results beyond all comparison superior to any preparation of lithium which I have tried. My satisfaction in the use of the preparation described has impelled me to call attention to its value, in the hope that the well-known prevalence of gouty affections in England may afford a field for a wider and more complete study of the therapeutic possibilities of this drug and at the same time acquaint others with what so far appears to be its strongly marked value in the treatment of disorders dependent upon the uric acid condition. The relative efficacy of the two preparations is, however, greatly in favour of the lithium acid tartrate. It is markedly diuretic and in some cases laxative in its action. The latter is especially the case when the drug is taken before breakfast. The promptness of its action is in many cases astonishing, a subsidence of distressing symptoms quickly following the administration of three doses of five grains each, taken four hours apart in a half-pint of water on a reasonably empty stomach. The use of the preparation in the quantities named has sufficed in all cases so far treated, about twenty in number, to practically cure the disorder, temporarily at least.—*The Lancet*, *June* 30, 1894, *p.* 1614.

DISEASES OF THE NERVOUS SYSTEM.

12.—THE TREATMENT OF NEURASTHENIA.

By G. H. Savage, M.D., F.R.C.P.

There are no two cases of neurasthenia exactly alike, therefore I have to give very general directions for their treatment. I would begin by saying, whether the patient is suffering from overwork or not, I believe that he must have rest. But rest is purely relative. What is rest to one man is not rest to another. I find that in many cases in the earlier stages rest in bed for a time is very useful. Thus a young, active-minded officer, who was always on the worry about doing his duty, was sent travelling about by various doctors, being told not to give way but to struggle against his feeling of langour. With a will he set to drive away the demon of weakness, with the result that after all the spurring the nervous system finally gave out, and I then saw him and sent him to bed with the best results. I believe very strongly in bed in a very large number of the cases. In some simply lying in bed is enough, while in others massage is of the utmost service. I have recently seen two clergyman of the highly nervous, conscientious type, but who neither had too much work, yet they broke down and bid fair to become melancholic. One managed to gain one stone in one week and four stone in six weeks under the bed and massage treatment, and with proper care, the corner having been reached, a straight road may be followed, leading to health and work. I do believe in rest, but I do not believe in the ordinary prescription of travelling; in many cases a yachting cruise in summer seas is of the utmost value if the patient have a suitable companion, but there is some danger in sending these cases away for long voyages without special attendants, for neurasthenia may be the passing cloud which overcasts the mental well-being, or it may be the signal of coming disaster. Neurasthenia may herald general paralysis, or may be the early stage of some form of recognised insanity.

Under this head of treatment I think I should say that I believe in Weir-Mitchell treatment very strongly when the patient is still on the border lands; I do not think that he will do much, if any, good if he have developed distinct delusions. Next, I do not think much of the modified Weir-Mitchell treatment, which is so often forced upon one. It is all very well for the friends to say they can carry out the treatment just as well at home as in a home; they cannot; and you do

not give the patient the same absolute rest from peripheral irritants as you do in a home. It is not true, in fact, that these patients, after a day or two, worry about the past and future, they accept the fact that they are to be left alone ; I would so far modify the treatment that I would not necessarily overfeed to the same extent that one does in anorexia nervosa.

I have no experience of the added electrical treatment, but I can believe that it will be of service. The next practical point is as to how much you are to argue with the patient. My belief is that you will do no good by arguing, and that assertion is better than reason in these cases — you lay down the regulations and decline to discuss them ; I point out, as a rule, that there are two ways of attaining the end, and, by the way, I do believe in dogmatically asserting the prospect of cure and also the explaining that it is not brain disease which is causing the trouble.

I explain that the methods are either to isolate, so as to give rest while the nervous system is being built up by suitable food, and the conditions which tend to repair sleep are being encouraged, or else the patient may be placed under firm, but skilled, companionship, and set to work out his own cure through muscular work and the like. Patients want to be set to do definite work, to learn a language or to study a new science ; but such attempts, as a rule, fail—there is defect of power of attention, and with it there is defect of memory and the same worrying feeling of failure. I have had some good results from the following a mechanical training, such as carpentering ; and golf in my hands has been of great service if taken with a suitable and even-tempered companion.

I do not believe in the endeavours to draw out the patient's higher faculties by will alone, and I do not think that home is a suitable place for treatment. In some cases one has to follow not the ideal best, but the practical best, and this often means trying to make bricks without straw. I have been able to steer a few cases through while they were still following their work. This is almost impossible unless the work is of a definite kind, and confined to a few hours a day. In such cases I think sending them away for the end of the week to some quite seaside place, where golf can be got and where an interesting but non-exciting life can be followed, will end in cure in some cases.

I believe that in cases where time is of great importance the best chance lies in complete isolation and Weir-Mitchell treatment. Every form of bath has been suggested, and hydropathic institutions have a constant flow of such patients through them. I cannot say I have seen much good result except in the early and very slight cases, which would have got

well anywhere. I make use of the Turkish bath in some cases, but, as a rule, the only cases which benefit are those in whom there is at least ground for thinking that uric acid plays a part in the production of the symptoms. In these cases a Turkish bath twice a week will often lead to improvement. In any case one has to impress the fact that the cure will not be sudden or even rapid. Travelling, as I have already said, I look upon, as a rule, is contraindicated. I see a considerable number of persons who are made worse by the regular tour through Switzerland, and I see Americans who, having "done" Europe for cure, are so much the worse for the process. I have seen a good deal of good results from sea voyages in persons who were good sailors, but I have seen harm and great nervous exhaustion follow voyages in persons who were liable to sea-sickness.

Perhaps this is the place in which I ought to refer to the use of hypnotism and suggestion in the cure of neurasthenia, but I can only repeat what I have heard, for my own experience has been obtained at second hand. I have known several cases with extreme weakness and with all the neurasthenic symptoms in a very exaggerated form in whom hypnotism has been tried, first, as a rest producer, and secondly, as a mode of changing the tone of thought and feeling, but I cannot personally recall a case in which I have seen any good follow. There seems, however, to be evidence enough collected to show that in some cases good results follow. I had one young patient who was for months under the treatment by Weterstrand, of Stockholm, and though his bodily health improved his mental tone and his inability to work persisted. His was one of the cases in which, with very little apparently wrong, the brilliant nervous apparatus was unable to fulfil its part. His letters are very characteristic of the type of cases. In his case everything was tried, from indulgence to firmness. I went so far as to say to his father he had better allow him a living wage, and tell him he must shift for himself. I fear the result in any way will be a useless, self-conscious, weakness which will last his life.

The only novelty I purpose introducing to your notice is one about which Dr. Ralph Browne has recently written. He has taken the physiological and clinical work of Dr. Cheron as his basis, and he has shown what the effect of the subcutaneous effusion of artificial serum is, and from the physiological effects he has turned this to practical uses.

Under the head of treatment everyone places rest first, and after that come diet and other conditions. I do think the diet is of great importance, but I have failed to find any one stock diet which will be of service to all cases. I believe in some cases the patients must be treated as if they were gouty, and the

meat diet reduced. On the other hand, I have found most excellent results follow full diet and generous use of heavier wines. I have met with several marked cases of neurasthenia among teetotallers, and I have seen cases also in vegetarians, or in those who were practically all but vegetarian. I have given with advantage coca wine to some patients, more especially to those who were sleeping badly, I find that a wineglassful of this wine, with a biscuit given before going to sleep, is often able to produce a good night's rest. I believe in many cases frequent light feeding is essential, and night feeding often gives relief to the morning depression. In most cases it is well that a cup of milk, with or without a tablespoonful of brandy, should be taken on awakening in the early morning. This often gives rest or even sleep. In the same way in other cases a few grains of chloral at this time may be of service, or a small dose of sal volatile or, what is less pleasant, paraldehyde. A hot bath in some cases leads to sleep if taken shortly before the usual hour for going to sleep.

One must not forget that of neurasthenics are made morphine takers and those who take to hypnotics of various kinds. In all cases it is well to avoid the use of morphine, that is, at least, the use of the drug by the patient himself. These patients readily pass into hypochondriasis, therefore need to be judiciously neglected. They differ from the hypochondriac in that they believe in their doctors.

As to electricity and the subcutaneous injection of serum and hypnotism I must rather refer you to the experience of others.—*British Medical Journal, September* 8, 1894, *p.* 523.

13.—THE DIAGNOSIS, PROGNOSIS, AND TREATMENT OF AURAL VERTIGO.

By Stephen Mackenzie, M.D., F.R.C.P., Physician to the London Hospital.

[The following excerpt is taken from an interesting and important paper dealing with the whole subject of aural vertigo :]

The diagnosis of aural vertigo presents little difficulty to anyone who has paid attention to the subject, at least the recognition of the disease ; but true diagnosis, the distinguishing between the different conditions that may cause aural vertigo, is sometimes of extreme difficulty. Nevertheless the correct nature of the disease is not infrequently overlooked. The aurist, or anyone who has studied the disease, goes straight to the ear, so to speak, and makes it the starting-point of his

investigations. In many cases, however, which have come under my observation, no attention has been paid to and no examination made of the ear, and the symptoms have been ascribed to cerebral disease. Occasionally the great prominence of gastric disturbance, especially when this has coincided with some irregularity or impropriety of diet, leads to the belief that the cerebral symptoms are due to indigestion or "the liver." It is now generally admitted that vertigo of gastric origin, the "*vertigo a stomacho læso*" of Trousseau, is a much more rare condition than the impressive writing of the great French clinician had led the profession to imagine. In the great majority of cases of so-called "gastric vertigo" there will be found some chronic aural disease. It is quite probable that in such cases gastric irritation may excite an attack of vertigo in a patient in whom the condition of the ear alone is not sufficient to induce an attack of vertigo, by a process of irradiation or overflow from the pneumogastric to the auditory nerve, the reverse of what occurs in true or primary aural vertigo. The occurrence of tinnitus, vertigo, nausea, and vomiting, especially when these symptoms occur in this order, should always excite suspicion of aural vertigo. In some cases the patient is unaware of any deafness, or is so accustomed to a slight degree of "hardness of hearing" that he does not connect this in any way with the alarming and novel experience of giddiness, and I often find patients very much surprised that the ear should be so carefully examined, and still more so to be told that their attacks of vertigo are caused by disease of the ear. In nearly all cases there will be found a certain degree of deafness in one or both ears, and examination with the tuning-fork will establish that this is associated with deficient bone conduction, indicating that it is of nervous origin. In the great majority of cases in my experience some disease is found in the middle ear. The examination of the ear, however, must be systematic and complete, for, as pointed out previously, the vertigo may be due to a variety of conditions connected with the ear. On the care with which the examination is made will depend in a great measure the power to foretell the probable course of the malady, and to some extent the power to benefit the condition by treatment.

Unless due to some such cause as a foreign body in the ear, the probability is that a person who has had one attack of aural vertigo will have others. It is in most cases a paroxysmal disease. In many cases a considerable measure of success attends attempts to ward these off, but in some cases we seem powerless. The attacks of vertigo become more and more frequent, until the patient ultimately gets into a permanently vertiginous condition. In some of these sad cases relief is

ultimately obtained by the supervention of deafness. It is well to give the patient some idea of the probable course of events. I generally tell patients who consult me that treatment is to some extent uncertain, that it is always protracted, but that if they will perseveringly assist in carrying it out the probability is that they will be rewarded by lessened frequency or total cessation of the attacks of vertigo, but that in all probability the noises in the head and the deafness will persist. This is the outcome of my own experience. I have treated many cases where the aural vertigo has entirely ceased. Gowers speaks to the same effect.

We have seen that the immediate cause of the vertigo is the effect of irritation of the terminations of the vestibular nerve, which is conveyed to the co-ordinating centre (cerebellum), causing disturbed equilibration, and the perceptive centre in the first temporo-sphenoidal convolution, causing vertigo and tinnitus.

The treatment must vary according as we are called upon to treat an acute attack or paroxysm, or to ward off subsequent or threatened attacks.

(A) *Treatment of an acute attack.*—If severe, the recumbent position will be assumed voluntarily by the patient, and should, of course, be continued as long as the vertigo is induced or increased by assuming the erect posture. Time is a necessary factor in lessening or preventing peripheral irritation. Meanwhile the chief thing to be done is to subdue the excitability of the nervous centres. For this purpose no remedies are so efficient as bromides, and of the salts of bromine none have any advantage over bromide of potassium. It should be given in fair doses—10 to 20 grains three times a day. Gowers has suggested bromide of lithium, with or without citrate of lithium, in gouty cases. In the latter class of cases the salts of potash, colchicum, and salicylate of sodium are often of service, especially when preceded by a mercurial purge. Counter-irritation in the form of a small blister behind the ear is sometimes of benefit. At the same time the local condition of the ear should be attended to, and appropriate treatment, which it would be here out of place to discuss, adopted. By these means, or independently of them, the acute and severe symptoms in the great majority of cases pass off. The patient is left generally with his deafness and tinnitus, and usually haunted by the dread of another attack.

(B) *The interparoxysmal treatment.*—Can anything be done to avert further attacks? Several remedies have been suggested and tried with varying success, and it must be admitted that the treatment is uncertain, and to some extent empirical. Of course care must be taken to remedy any ascertained derange-

ments of function in the various organs, to regulate the diet, and order the life of the patient for the best. Whilst we are doing this, or when it is accomplished, there may remain the liability to occasional attacks or paroxysms of vertigo. The pathological nature of the lesion giving rise to these has been already discussed, and shown to be somewhat conjectural. The remedy which I, following the suggestion of M. Charcot, have found most commonly useful is quinine in considerable doses—3 or 4 grains three times a day, and in some cases double these doses have been taken by patients. I have never seen any harm, more than temporary discomfort, from quinine in such cases, and certainly many cases whilst taking quinine for this complaint have lost their attacks, and not suffered again upon discontinuing the drug. Salicylate of sodium appears to do good in a certain number of cases in warding off attacks. A good deal has been recently written about the use of pilocarpin in such cases. Originally employed by Politzer in the treatment of a case of syphilitic disease of the labyrinth with benefit, he later became dissatisfied with and discarded it. Sir William Dalby does not think at all favourably of it. Mr. Field, on the other hand, seems to have had a considerable measure of success with this drug. It is possible that the different results of observers depend upon the method and doses employed. The important points appear to be to give enough, to give it hypodermically, and to give it sufficiently frequently. Field begins with 3-minim doses of a 4 per cent. solution every day, and he increases the dose to one-tenth, one-fourth, or even one-third of a grain if suitably borne. Its assumed action is to increase the exudation of secretion in the labyrinth and middle ear, and thereby assist in the resolution of inflammatory changes. I think one of the most practical points in warding off attacks is to keep your finger on the pulse, if one may use the expression; that is, to watch and keep down arterial tension. It will be remembered that the great majority of cases occur in the later half or degenerative period of life, when the kidneys tend to become granular, the arterial tension to be increased, and cardio-vascular changes to occur. There is no remedy so useful in such cases to keep down arterial tension as mercury in some form. An occasional dose of blue pill should be given, say once or twice a week; and it is a good practice to prescribe powders containing 3 to 5 grains of calomel to be habitually carried in the pocket-book, and order one to be taken when any premonitory symptoms, such as increased tinnitus, fulness in the head, or headache occur. A dose of calomel taken in such circumstances, patients have assured me, has averted attacks which they believe would otherwise have occurred.—*British Medical Journal May* 5, 1894 *p.* 955.

14.—ON PARAPLEGIA FROM VERTEBRAL CARIES.

By William Thorburn, M.D., F.R.C.S., Assistant Surgeon to the Manchester Royal Infirmary.

Pathology of Paraplegia in Vertebral Caries.—Caries of the spine may affect either the bodies of the vertebræ or their arches, the former being very much the commoner of the two conditions; and here we find that paraplegia may be produced in one or other of the following different ways:—

1. That mere kyphosis is not usually competent to produce paraplegia is indicated, on the one hand, by the total want of clinical relationship between the extent of spinal deformity and the presence or absence of paralysis, and, on the other, by the post-mortem evidence that in these cases the spinal canal is frequently not narrowed but actually widened. Nevertheless, in a few rare cases the angular curvature has been found to cause compression of the cord, an example of this nature being recorded by Chipault.

2. Sudden paraplegia may result from fracture of carious vertebræ, examples being recorded by Park, Chipault, Kraske, and others; but this also is not a common condition, Kraske estimating cases of this nature to form but two per cent. of the total number of paraplegias depending upon vertebral caries. These cases also stand apart in their pathology, the essential lesion being here a fracture-dislocation, and as Kraske—who has specially investigated the point—also suggests, laminectomy can here only do harm, in so far as it further weakens the already fragile spine, whereas the cord lesion is not due to simple pressure but to an irreparable crush, such as those to which we have elsewhere referred. Probably, therefore, the most suitable treatment of cases of this nature will be by extension and fixation of the spine.

3. Rare causes of paraplegia—causes so rare that we need not refer to them further—are the bursting of abscesses into the spinal canal, hemorrhage into the canal, and the displacement of bony sequestra, which press upon the cord.

4. Charcot and others have shown clearly that the most usual cause of paraplegia is pressure by granulation tissue, which may or may not be caseous, this pressure being accompanied by irritative non-tuberculous pachymeningitis. The exact *modus operandi* of this pressure is, however, still open to question. The school of Charcot attributes the mischief to myelitis spreading from the point of pressure across the cord, but most recent observers do not accept this view, and it is certain that pressure alone (without myelitis) may cause paraplegia. The

simplest explanation of such a condition would be that the pressure causes anæmia and subsequent degeneration of the cord, and in some cases we find the latter thinned and firm in texture, as if this were the true explanation. Kahler, Schmaus, and others, however, find that œdema and swelling of the cord is more common than constriction, and this condition is generally attributed to an extramedullary compression of veins and lymphatics, causing congestion and lymph stasis. Schmaus, somewhat hypothetically, attributes the œdema to irritation by the circulation of chemical products of the tubercle bacilli.

5. Lastly, in a few cases true tuberculous periarteritis is found within the cord, generally in association with tuberculous leptomeningitis, due to the perforation of the theca by the diseased process.

The condition usually found, both after death and during operation, is, however, certainly that of pressure by granulation tissue or abscess (that is, granulation tissue which has softened) accompanied by non-tuberculous pachymeningitis and with either a small firm cord or a swollen œdematous cord. Local degeneration with secondary degenerative changes in the ascending and descending tracts follow. The pressure, it should be added, may be either directly backwards or lateralised, or, in cases of posterior caries, from behind forwards. Further, in a few cases no anatomical changes have been found, and in one of my operations the condition revealed appeared hardly sufficient to have given rise to the symptoms which were present, although the latter rapidly recovered after laminectomy.

Prognosis.—It is common clinical experience that recovery will usually occur after prolonged rest with fixation of the spine, but the limitations of ordinary hospital experience render it difficult to estimate in figures the frequency of this result. My own experience is that nearly all cases will recover if kept fixed in the recumbent position for a sufficiently long time, but the time required may be very prolonged, and I have at present under observation two patients who were totally paralysed for more than eighteen months, both of whom can now walk. In fact, of all the cases which I have met with, other than those submitted to operation, I know of only one in which the patient did not recover, or was not manifestly recovering when lost sight of. Myers has the most extensive statistics upon this subject with which I am acquainted, recording 218 cases of paraplegia due to caries, of which $3\frac{1}{2}$ per cent. died of intercurrent diseases, 55 per cent. recovered under observation, and the remainder were either lost sight of, or had not recovered while under treatment, which, however, was not sufficiently prolonged to prove their incurability. It is, however, the less necessary to labour this point, as it is generally recognised that recovery is

the rule in cases of this nature. On the other hand relapses are unquestionably common, and recovery is rarely, if ever, absolutely perfect, there being at least some exaggeration of the deep reflexes which, persisting through life, indicates the previous existence of the paralysis.

Cases in which the paraplegia is due to intramedullary tuberculous periarteritis can hardly be expected to get well, and those in which pressure has arisen from fracture of the carious bones are not likely to improve to any great extent. So also in some of the other rare varieties of paraplegia we have little to hope for, but, unfortunately, these are just the cases in which we can hardly expect any benefit from operative treatment.

Indications for Operations.—Assuming the prognosis to be thus favourable we are never called upon to perform laminectomy save under certain special conditions. It will not be argued that the recovery after laminectomy is more complete than that produced by Nature, and experience shows that relapses also are only too common after operation. The indications which appear to me to point to the necessity for operation are then as follows :

1. A steady increase in symptoms in spite of favourable conditions and treatment.

2. The presence of symptoms which directly threaten life. Intractable cystitis would fall into this category, but it is by no means common, and we can hardly agree with those who hold that the condition is in itself incapable of spontaneous recovery.

3. The persistence of symptoms in spite of complete rest is the indication which has been most commonly adopted, but, as we have already seen, such symptoms may persist for very long periods and then yield to absolute rest. It is, however, not improbable that, in a few cases, cicatricial pachymeningitis or, rather, peri-pachymeningitis may remain after the original pressure lesion has ceased to act, and may thus keep up paraplegia until the constricting tissue is removed.

4. In posterior caries (that is, in caries of the arches of the vertebræ) operation is clearly indicated, as here we can readily both treat the paraplegia and remove the whole of the tuberculous tissue. Two cases of this nature are recorded by Abbe and by Chipault respectively, and both proved highly successful.

5. In my fifth case, the existence of severe pain, which was rapidly exhausting the patient, was regarded as an indication for surgical interference.

6. Lastly, children, as a rule, yield better results than do adults, so that, other things being equal, childhood may also be regarded as an indication for operation.

Contraindications.—On the other hand, there are certain definite contraindications, such as the presence of active tuberculous changes in other organs. Macewen holds that we should not operate when there is pyrexia, which is almost tantamount to saying that we should not operate in presence of active tuberculosis. If, however, the pyrexia were clearly due to cystitis, then we might regard it as an indication for, rather than against, interference. Again, general meningitis (although fortunately very rare) will at times obviously be present, and will probably prove fatal whether we operate or not. To cases of fracture following upon caries we have already referred as unsuitable for laminectomy, and most paraplegias of sudden onset will fall into this category.

Placing upon myself the limitations to which I have above referred, I have had, naturally, but few cases of laminectomy in spinal caries, and these cases having been generally serious ones the results are by no means good, there being two deaths, one in which no improvement followed the operation, one of temporary improvement, and only one of perfect recovery. I can, however, hardly regret these statistics as I have had the satisfaction of seeing a very large number of cases recover without operation.

Recorded Cases.—It is difficult to estimate the mortality of these cases—that is to say, how far the mortality is due to the operation itself—but I think that from 17 to 20 per cent. of deaths is not far from an accurate estimate. By far the most common cause of death has been shock or syncope; in a few cases myelitis or meningitis has proved fatal; in one the result was due to hemorrhage into the cord; and in one to hemorrhage from the vertebral artery at the time of operation.

As regards cure of the paraplegia the immediate result has often been good—the symptoms improving even if they do not entirely disappear; but, unfortunately, recurrence is not uncommon, and in not a few cases a tuberculous sinus forms in the healed wound. This simply means that we have not fully cleared out the tuberculous tissue, and hence we are met by the usual difficulty in the surgery of tuberculosis, the difficulty of removing the disease by any conservative operation.

In the earlier cases no attempt was made at complete elimination of the tuberculous tissue, but in the modern and bolder operation, so strongly urged by Urban and Chipault, we may hope occasionally to succeed, although the probabilities of failure must remain considerable. The most satisfactory results have been those obtained in cases of peri-pachymeningitis in which the original tuberculous disease has ceased.

Lastly, it is to be remembered that, in some at least of the apparently successful operations, it is probable that the associated rest and fixation of the spine would alone have

sufficed to produce the fortunate result. Thus, in a series of cases such as those recorded by Mr. Lane, we can hardly doubt—having regard to our general clinical experience—that no small proportion would have recovered without laminectomy. —*British Medical Journal*, *June* 30, 1894, *p.* 1401.

15.—ON THE MURMURS OF ORGANIC ORIGIN OCCURRING IN CHOREA.

By William Osler, M.D., F.R.C.P.

Acute endocarditis, commonly of the mitral leaflets, occurs with great frequency in chorea, and the remarkable statement seems quite justifiable that there is no other disease, not even acute rheumatism, which is so frequently accompanied with valvulitis. The apex systolic murmur heard in many cases of chorea is doubtless due to the endocarditis. The symptoms and physical signs of acute endocarditis are very uncertain : the mitral segments may be inflamed, and yet the patient may present no cardiac symptoms whatever. There are very carefully observed cases in chorea, in which the apex murmur has not been present, and yet post-mortem the mitral segments have shown vegetations. Feelings of oppression about the heart, palpitation, transient dyspnœa, though mentioned as symptoms of acute endocarditis, are, after all, rarely present in the first attack, and are much more commonly seen in a recurring endocarditis attacking a heart already damaged. Fever, too, is a variable symptom, and is not always present. The physical signs, though in a way more reliable, are nevertheless inconstant. The apex beat may be a little diffuse and the area of dulness increased, both phenomena being due to slight dilatation of the left ventricle. An alteration of the first sound, which has a prolonged or dull character, with the subsequent occurrence of a blowing murmur at the apex region, developing under observation in a case of chorea, rheumatism, or fever, and more particularly in the earlier stages, before the patient has become much enfeebled and anæmic, are the most reliable auscultatory signs.

The following statements may be made on this question :— (*a*) The extraordinary frequency with which mitral valvulitis is met with in fatal cases is remarkable. There is no known disease in which endocarditis is so constantly found post-mortem as chorea ; it is exceptional to find the heart healthy. Statistics of fatal cases of acute articular rheumatism do not show so large a percentage of endocarditis. The lesion is identical,

microscopically as well as macroscopically, with simple or warty endocarditis as we see it in other diseases. (*b*) The character and location of the apex murmur are such as experience in other affections has taught us to be associated with inflammation of the mitral segments. Why this murmur should be so generally connected with the presence of a row of small, warty vegetations just within the auricular margins of the curtains, and not capable, as one would think, of seriously interfering with their functions, is a problem to be solved. The condition certainly does not necessitate regurgitation, and the bruit may perhaps, as has been suggested, be due to friction of the roughened faces of the segments. (*c*) The inconstancy of the murmur and its disappearance on the subsidence of the chorea have been urged against this view. As already stated, the bruit may be variable, and indeed does not necessarily accompany mitral endocarditis. Kirkes, years ago, insisted upon this, and there have been two autopsies in carefully studied cases of chorea in which the vegetations were found post-mortem, although careful examination during life had failed to reveal a murmur (Baxter, *Brain*, Vol. II. ; Frank *Allg. Wiener med. Zeitung*, 1879). There are facts which suggest that we may during the attack have an endocarditis, not manifested even by a murmur, which has, nevertheless, laid the foundation of future trouble. The disappearance of the apex murmur of chorea—and of rheumatism also—has been repeatedly followed, and if it is true that the murmur is caused by the small vegetations, that it should disappear is only a natural sequence of the changes which go on in them. At first a soft granulation tissue, they become in time firmer and smaller, until ultimately smooth, flat elevations mark the spots. It is not improbable that if we could follow accurately the auscultatory history of a valve affected with acute endocarditis, we should find in many cases that the murmur of the fresh attack disappeared, to reappear when the changes, which it is the misfortune of the acute disease to initiate, have reached a point at which they begin to interfere with the competency of the valve. (*d*) In its sequel the cardiac affection of chorea has been supposed to differ from that of other diseases, "as none of the injurious after-consequences which attend endocarditis in its other relations . . . are found to ensue here" (Sturges). The examination of a large number of choreics some years subsequent to the attack tells a sad tale to the contrary, and proves that the primary heart trouble is, in a majority of cases at least, an endocarditis.

Condition of the Heart in Fatal Cases.—The statistics of fatal cases of chorea have been collected by Sturges and Raymond. Sturges states that of 80 cases, representing the combined

experience of Guy's, St. Bartholomew's, St. George's, and St. Thomas's Hospitals, there were only 5 in which the heart valves and pericardium reported healthy. In Raymond's table of 79 cases, if we exclude the London cases, 34 are left; in only 19 of these are specific statements given as to the condition of the heart, and in every one of the 19 endocarditis was present. From 1881 to July 1, 1894 (inclusive), I have collected from the literature 72 cases, of which 61 presented endocarditis. My personal experience includes 5 cases, in 4 of which endocarditis was present.

As is well known the mitral segments are much more frequently involved. In 40 cases they were alone the seat of endocarditis; in 13 instances the mitral and aortic segments presented vegetations; in cases the tricuspid segments were involved with the mitral; in 2 there were vegetations on mitral, tricuspid and aortic valves, and the tricuspid may be involved alone, as in one of Babington's cases; in one case the aortic segments were involved alone. Acute or sub-acute arthritis had occurred in 31 of the cases; in 4 it was doubtful, and in 37 it was specifically stated not to have been present.

Of the fatal cases in which endocarditis was not present, in 2 there was pericarditis alone, in 2 chronic mitral valvulitis, and in 1 the heart was fatty.

In the almost constant association with endocarditis, chorea stands unique among diseases. The only list of fatal cases of rheumatic fever available, with which to make a comparison, is that of Guy's Hospital. Of 45 cases which ended fatally, and in which there had been no previous chronic disease of the heart valves, the organ was found to be healthy in 8 only; in 19 both endocarditis and pericarditis existed; pericarditis alone in 10; endocarditis alone in 8. The percentage of unaffected hearts in this series is considerably higher than in the chorea cases just given. Endo-pericarditis is very much more frequent in rheumatism, and the proportion of cases of pericarditis is very much greater.

The endocarditis, almost invariably of the simple variety, is shown by the presence of a few small bead-like vegetations, just within the margins of the auricular surface of the mitral cusps. They present the usual characteristics of such structures, and in the cases which I have seen have differed in no respect from the endocarditis met with in rheumatism and in the secondary infections in various febrile disorders. I see no grounds whatever for Dickinson's suggestion, that the bead-like vegetations in chorea are not identical with those in other affections. Sansom states that there are two forms of endocarditis in chorea—the ordinary rheumatic valve thickening and the

beading of the cusps with papillary elevations. Thickening of the edges of the cusps, however, I regard as too uncertain a criterion, and no cases are included in the series which had not actual vegetations.

Subsequent Condition of the Heart in Choreic Patients.—It seemed important to determine the subsequent heart history of a considerable number of cases of chorea, since it was clear that in this way alone could satisfactory evidence be obtained as to the influence exerted on it by primary disease. Stephen Mackenzie has already shown, in an examination of 33 patients at periods varying from one to five years subsequent to the attack, "that indisputable heart disease persisted in 60·6 per cent. of the series of chorea examined." Of 44 children examined by Donkin at periods varying from two to twelve years after the chorea, 18 had signs of heart disease. Accordingly, in the spring of 1887, with the assistance of Dr. Charles Burr, and in the spring of 1889, with the assistance of Dr. Caspar Sharples, I made an attempt to reach all the cases of chorea which had been in attendance at the Philadelphia Infirmary for Diseases of the Nervous System since 1876. In all instances the examination was made two or more years subsequent to the attack of chorea. In each case reference was made to the original notes, questions were asked about subsequent attacks and rheumatism, and the heart was examined in the recumbent and erect postures, at rest and after exertion. In each case the notes were dictated at the time of the examination. The results of the examination of the first series, comprising 110 cases, have already been published, and sufficient details given of the cases to indicate the nature of the heart lesion.

Of the 140 cases, 98 were in males; 42 in females. The length of time which had elapsed since the attack varied in the cases examined from sixteen years to two years. In the first series more than half (63) of the cases were examined at a period of five or more years subsequent to the attack. The results of the examination were as follows:—In 51 cases the heart was normal; in 17 there was disturbance which might reasonably be regarded as functional; in 72 cases there were signs of organic heart lesion. This gives a remarkable, and I must say, at the time, an unexpected high percentage ($51\frac{3}{7}$ per cent.) of cases in which, following an attack of chorea, there was definite damage apparent in the heart.

Normal Cases.—Of the 51 persons in whom the heart was found to be normal, 15 had had three or more, 8 had had two attacks, and 27 a single attack. There was a history of rheumatism in 9 of the cases. In 7 of these the attack was of the acute articular type.

Functional Cases.—Of the cases presenting abnormal signs, 17 may reasonably be cited as examples of functional disturbance. They were cases without enlargement of the heart and with localised or variable murmurs.

Cases with Signs of Organic Disease.—Of the 72 cases 30 had had three or more attacks of chorea. The question of rheumatism was carefully investigated in each instance. In 25 of the cases, $34\frac{13}{18}$ per cent., there was a history of acute arthritis, which in seven of the cases had followed the chorea in from one to five years. Comparing the frequency of the articular affection in this group, $34\frac{13}{18}$ per cent., with that in the total series, namely $24\frac{2}{7}$ per cent., or with the group of 51 normal cases, in which it was $17\frac{11}{17}$ per cent., we see illustrated the greater liability to serious heart mischief in the cases with joint complications. We have, however, the much larger proportion, 66 per cent., of cases with positive organic disease, examined at a date two or more years subsequent to the attack of chorea, and questioned carefully as to the occurrence of rheumatism, in which there was no history of the existence of this complication.

Nature and Seat of the Lesion.—In a large proportion of all the cases the signs were those of mitral valve disease, usually insufficiency, indicated by the systolic murmur of maximum intensity at the apex, propagated to the left, with evidence of enlargement of the heart, sometimes also by a thrill, and marked accentuation of the second sound in the pulmonary region. The details of a large series of these cases are presented in the paper above referred to. While in a majority of the cases there given the lesion was well compensated, there had been in not a few instances attacks of shortness of breath and palpitation. Three of the cases died with the symptoms of chronic valve disease. In 24 instances a mitral presystolic murmur was present. One of the cases of mitral presystolic murmur subsequently died.

The importance of chorea as a factor in the etiology of chronic mitral valve disease is shown in a striking manner by the examination of these cases. It is not always inquired for in the anamnesis of heart cases in the medical wards. It is interesting to note the comparative rarity of the involvement of the aortic valves. There were only four instances of combined aortic and mitral valve disease. This is in accord with the anatomical distribution of the endocarditis, which has been shown to be so much more frequent on the mitral segments.

It may then be stated: (*a*) That endocarditis is a very common complication of chorea minor; (*b*) that in the majority of such cases the endocarditis is independent of, and is not associated with, acute arthritis, unless indeed we regard the

valvular lesion as itself a manifestation of the rheumatism, holding with Bouillaud that "chez les jeunes sujets le cœur se comporte comme une articulation"; (*c*) that in a considerable proportion of cases, much larger indeed than has hitherto been supposed, the complicating endocarditis lays the foundation of organic heart disease.—*The Medical Chronicle, August*, 1894, *p.* 323.

16.—ON URÆMIC HEMIPLEGIA.

By Reynold W. Wilcox, M.D., Physician to St. Mark's Hospital, New York.

It would seem that in view of the increasing number of reported cases of hemiplegia, which even a cursory search of medical literature discovers, where the paralysis subsequently completely disappears, that a careful study of uræmia as a causative factor should be undertaken. Yet we find that this condition has been denied by such authorities as Addison and Bright in England, and by Lécorché, Sée, and Lasègue in France. That such cases have existed and have been recognised is evident, for in many cases the "serous apoplexy" of the older writers is capable of no other interpretation. Finlayson notes that hemiplegia may complicate pregnancy and pass away after labour, and that the urine is almost always albuminous. The stumbling-block to the appreciation of uræmia as a valid cause has been that we have a paralysis without an apparent lesion, a symptom *sine materia*. Yet the cases reported, even since 1880, by Charpentier, Pätsch, Jäckel, Raymond, Chantemesse, and Tenneson, Bernard, Lancereaux, Level, Chauffard, Dreyfus-Brisac, Florand, and Canniot, Lloyd, and Dercum, are not susceptible of other explanation. It has been demonstrated to exist by Leyden and Leichtenstern. The convincing papers of Massalongo in Italy, in 1889, and Boinet in France, in 1892, leave but little for complete conviction.

The clinical histories of the reported cases present great uniformity of symptoms and signs. Careful questioning is important that the existence of prodromal symptoms shall be clearly established, for upon the presence of these symptoms (and they are rarely absent) is placed great dependence in the diagnosis. As symptoms:—(1) vertigo, often slight; (2) gastric symptoms, nausea unrelieved by stomachic medication, vomiting apparently without cause; (3) cardiac: if it be isolated hypertrophy of left ventricle, it should be remembered that this predisposes as well to cerebral hemorrhage; (4) localised œdema of face, eyelids, patches in lungs. As signs:—(1) the

urine is likely to be albuminous before the hemiplegia appears. If it is only discovered afterward, this symptom loses much of its significance, for it is often found in hemiplegia from hemorrhage or softening; (2) persistent low specific gravity of the urine is important, and casts, if found, will do much to aid in forming an opinion; (3) If only hyaline casts are present, the general import of the urinary findings is increased, for in contracted kidney these may be the only casts present; (4) if atheromatous changes are apparent, it may be suspected that the cerebral arteries present the same changes; (5) if albuminuric retinitis is present, as is rarely found, there is great probability that this is the origin of the hemiplegia.

The cardinal symptom of the attack itself is the sudden attack of hemiplegia, which may or may not be complete. The patient frequently, although not always, becomes comatose, with stertorous respiration. As the patient comes out of the condition the paralysis may be markedly relieved, or it may persist for several days with the same intensity. It may even change sides as Lancereaux has observed. It may be followed by contractions which are localised in the adductors of the opposite thigh, or in the non-paralysed arm as was seen by Raymond. The accompanying facial paralysis is of central origin and involves only the inferior facial, and is of the side corresponding to that of the body in five cases reported by Jäckel, Raymond, and Chantemesse. In the three cases of Bernard, Raymond, and Level, the face was not involved. Ptosis is exceptional, a single case of Raymond being the only one hitherto recorded. The morning hemiplegia may be complete, but it may be relieved and may disappear by evening. Aphasia has been observed in six cases (Level, Bernard, Raymond, and Lancereaux) coinciding with right hemiplegia. The hemi-anæsthesia is presumably of cortical origin, often less complete and more transitory than the motor paralysis. It may be sensorial, as in Raymond's case and in Boinet's (deafness), or it may invade the entire surface of the body (Raymond). It is usually proportionate to the loss of power. If coma is marked there may be a relaxation of all the members and the hemiplegia may be ascertained only as consciousness is restored. At the onset convulsive phenomena are frequent, a hemi-epilepsy or a hemi-eclampsia, especially in the part which later becomes paralysed. Jacksonian epilepsy, if present, is important in diagnosis. Conjugate deviation of the head and eyes is not uncommon. Generally the deep reflexes are diminished or abolished, but rarely are they exaggerated. Superficial reflexes are usually impaired. The pulse may be small, but is not likely to be hard or slow. The temperature was elevated in Chantemesse and Tenneson's cases even to 104° F. Unilateral deafness

has been described by Bright, and Barlow, Addison, Lasègue, Routh, and Goeles, Dieulafoy, Tissot, Dommergue, and Gurnowitch, and which persisted several weeks. In Boinet's case this deafness lasted three weeks. For five days an amnesis, similar to that which follows eclampsia and carbon dioxide intoxication, persisted in Bionet's case. The pupils are not usually contracted (they were not contracted in Bionet's case); but if they are, hemorrhage and softening are not excluded.

Sequelæ.—The motor troubles disappear, the sensory conditions return, and recent contractures are rare—equally so are late ones. The tendon reflexes of the disabled side may become normal, or, as in my case, exaggerated.

The differential diagnosis is important, but, as was shown by Florand and Canniot in one case, it may be impossible. The hemiplegia from cerebral hemorrhage presents many points of similarity. The distinction can be made in that it is apt to cease after the coma, and that it rarely persists for several days with great severity; after a time the uræmic hemiplegia disappears in part or as a whole. Or if another uræmic attack supervenes, the paralysis may be upon the same or the opposite side; nor is it so complete or permanent as in cerebral hemorrhage. The important characteristics are the antecedents of the person, the variability and mobility of the paralysis, the presence of albumin, and the low specific gravity of the urine. There is nothing distinctive about the coma or the slow and stertorous breathing. The paralysis in both instances may be preceded by unilateral convulsions resembling those of an irritative lesion of the psycho-motor zone of Jackson, Bravais, and Charcot. These convulsions may be clonic, rhythmical, often limited to members which later become attacked by paralysis, or they may be both clonic and tonic at the same time. Leichtenstern attributes these convulsions to localised œdema. Rigidity of limbs or local muscular twitching in paralysed limbs is in favour of uræmia.

Although both Addison and Lasègue deny the existence of a distinctive uræmic temperature, yet the low temperature so frequently found is a help in diagnosis. Gowers says that in uræmia the temperature is always subnormal except when local influences exist. Yet we do not obtain the profound alterations in temperature which have been so carefully described by Dana—the marked initial fall, the gradual rise of the first three or four days to normal or slightly beyond—nor, indeed, the slightly higher (one-half to two degrees) temperature in the paralysed side; nor is it normal on the paralysed, the subnormal being on the sound side. Perspiration is more likely to be present in cerebral hemorrhage. Nor are we so likely to have the abundant urine of low specific gravity in uræmia, while

albumin and casts are far more frequent. The condition of the deep reflexes, abolished immediately after shock, soon returning and becoming exaggerated on the paralysed side, may be alike in both instances. But there is not so likely to be inequality in the size of the pupils as in hemiplegia from hemorrhage, nor so great failure to respond to light. If the pupils are normal or dilated we should consider uræmia. But on the other hand we must remember that renal disease is found in one-third of all cases of cerebral hemorrhage (Eskridge), and it should also be borne in mind that the hemorrhage may be due to syphilis.

The mobility of the paralysis recalls that due to cerebral softening from thrombosis — complete in the morning, it diminishes in the evening, and again increases some hours after. Myosis is not a valuable sign, as it occurs in both. Aphasia in right-sided paralysis has only a negative value. The temperature, if elevated, may be due to local conditions in uræmia; if lowered, it points towards uræmia, but not so strongly as against hemorrhage, for according to Dana the initial fall in softening from thrombosis or embolism is rare, and if the temperature be taken in the rectum it is of short duration. If subnormal temperature exists it is only in the non-paralysed side, and there is a slighter tendency to irregularity in both sides and a slower rise if it does occur. But if secondary inflammatory symptoms occur the temperature is well marked (Eskridge), and so this fact would be against uræmia. The urine may also be albuminous, but is not so likely to contain casts as in uræmia. The condition of the heart, which is likely to be feeble, dilated, and irregular, may aid in the diagnosis of softening; the arterial degenerations are common in both.

It does not seem necessary that the differential diagnosis between uræmic hemiplegia and tubercular meningitis or hysteria or epilepsy should be given, as the mistake ought not to be made; but as writers have called attention to these conditions it is well to bear them in mind.

In general the fugitive premonitory symptoms, localised œdema, pallor, headache, dyspepsia, the variability and mobility of the paralysis (which may or may not be preceded by Jacksonian epilepsy), the urinary conditions, the temperature curve, and finally the complete cure, suffice for a clearly cut diagnosis.

The prognosis is generally very grave, naturally depending chiefly upon the renal lesion. An elevation of temperature to 104° F. is always of unfavourable portent. In Boinet's case it remained normal; in Chantemesse's case, which recovered, it never rose above 100·4° F. Myosis and conjugate deviation of eyes and head are of grave omen. In the majority of cases of death these three symptoms have been present. The

amelioration of the uræmia marks the decline of the hemiplegia. So far as the hemiplegia itself is concerned, total recovery is the rule.

Treatment.—If the general condition permits, bleed (Boinet's case to 400 grammes, which caused the coma and hemiplegia to disappear). This takes out urea in the proportion of 2·43 per mille, with toxic urinary products and ptomaïnes, and as well relieves the vascular troubles and cerebral œdema which Raymond, Chantemesse, Florand, and Canniot have habitually found in autopsy. Drastic purgatives may be useful—elaterin, jalap with cream of tartar, croton oil in emergency; or purgative clysters, concentrated glycerine, Epsom salt enema. Diuretics may be indicated, as theobromine; and diaphoretics, as pilocarpine, if the heart be carefully watched. Digitalis has been recommended if the stomach bears it, but preferable is strophanthus or sparteine. Adonidine as a substitute should be borne in mind. Milk for nourishment should be insisted upon. Steam baths are occasionally of use. For convulsions bromide of potassium and chloral are indicated.—*The American Journal of the Medical Sciences, May*, 1894, *p.* 493.

17.—SYPHILITIC SPINAL PARALYSIS.

By William Aldren Turner, M.D., M.R.C.P., Assistant Physician to the West London Hospital.

Erb has recently described a combination of symptoms indicating a partial myelitis of the thoracic region of the spinal cord in persons who have been infected by syphilis. This combination is regarded by him as determining in all probability a disease *sui generis*, characteristic of an affection of a definite and constant part of the spinal cord, and one in which much benefit may be derived from anti-syphilitic treatment. It is, however, merely in their combination, the motor effects being largely in excess of objective sensory phenomena, and in the constant relation which these bear to syphilis, that their diagnostic importance, as stated by Erb, is found; for the symptoms are indicative, not of any special form of myelitis, but of inflammation affecting to a partial extent a special portion of the spinal cord. As there is at present under my care in the wards a patient whose symptoms harmonise with those described by Erb under the term "syphilitic spinal paralysis," I take the opportunity of making some remarks on the condition.

Case 1.—A man 28 years of age was admitted on January 7 last, complaining of stiffness in the legs coming on when he walked and inability to retain urine. He states that his illness

began about six weeks ago with pains across the lumbar region, which lasted about three days. Then slight dragging of the right leg when walking ensued, so that he was unable to raise his toes freely from the ground. This continued for about seven days, when the left leg became weak in the same manner as the right, although to a less extent. One week after the onset of the lumbar pains incontinence of urine, and to a slight extent of fæces, occurred, and existed with slight remissions until admission. The patient was a sailor for ten years, being chiefly engaged on foreign service. He has had one mild attack of malaria, without any recurrence. He contracted syphilis about ten years ago. His general health till the present illness began has been good. As regards the present condition of the patient he is a robust-looking, intelligent man, without any defect of articulation. He walks with a highly spastic gait, dragging both legs, especially the right, slowly along the floor. When placed in bed ordinary voluntary movements of the legs are good, although they are somewhat jerky and ungraduated. The tendon reactions are greatly exaggerated, patellar, ankle, and toe clonus being readily obtained. The plantar reflex is very active. There are some subjective sensory symptoms, such as occasional "pins and needles" in both legs, but without any pain. The objective sensory phenomena consist of a slight and local defect to tactile impressions over the front of the left leg, and some defect in the sense of position of the toes when they are passively moved. There is occasional incontinence of urine, which, however, not infrequently amounts to no more than a slight loss of retentive power, so that he has to pass urine several times an hour. There is no spinal pain or tenderness, the upper limbs are unaffected, and the pupils are equal and react to light. The other systems are normal.

The symptoms which characterise this condition are stated by Erb as follows:—Most typical is a markedly spastic gait, the patient dragging his toes tardily along the ground, the legs being stiff and rigid; but there is scarcely any loss of power, for when placed in bed he can move his legs freely and forcibly, although as in Case 1, the movements may be jerky and ungraduated. Contractions such as are seen in myelitis, either idiopathic or resulting from the pressure of a tumour or disease of the bodies of the vertebræ, are rare. In only one-tenth of his cases did Erb observe any such contractions. In the case which I have narrated they are slight and infrequent. Great exaggeration of the tendon reactions is a constant phenomenon, patellar clonus, ankle clonus, and toe clonus being well marked. The sensory symptoms are characteristically subjective and slight, consisting mainly of numbness, tingling, and, very rarely, pain in the affected limbs. Objective sensory phenomena are

seldom noted, although occasionally circumscribed patches of anæsthesia may be detected, as in this case. Affections of the bladder, causing either retention or incontinence of urine, are always present, and are sometimes, as in the case before us, associated with paralysis of the sphincter ani. Impotence is usually a constant and early symptom. Trophic changes are rare, and have been observed only in very severe forms. The upper extremities remain quite unaffected. These symptoms may be grafted upon a case showing other syphilitic nervous phenomena, such as ocular paralysis, reflex pupillary immobility, and so on ; but these are in no way essentials of the disease.

It is upon the association of these symptoms, in common with certain other facts to be shortly mentioned, that the diagnosis of this condition is based. The nature of their onset is also important. In the majority of cases it is gradual, extending over some weeks or months. In Case 1 the duration of incidence from the commencement, with lumbar pains, until both lower limbs were paretic, was about six weeks. The differential diagnosis has to be made chiefly between primary spastic paralysis, paraplegia resulting from a transverse myelitis due to some cause other than syphilis, and ataxic paraplegia. The second of these conditions is usually characterised by considerable objective sensory disturbance, such as anæsthesia to all forms of sensibility, marked paraplegia, and contractures. From primary spastic paralysis the differential diagnosis is more difficult. If seen in the early stages, the primary form presents a spastic gait, rigidity, and exaggeration of the tendon reactions, but without any, or with only very slight, sensory disturbance or implication of the organic reflexes. In this way it may be distinguished from the syphilitic spinal paralysis, with its well-marked bladder and subjective sensory phenomena. The tendency of the syphilitic affection to resolve with lessening of the symptoms allows of more ready differentiation in the later stages from primary spastic paralysis, whose course is progressive. The greatest diagnostic difficulty is presented by ataxic paraplegia. In the early stages of this disease, especially if the onset be subacute, it may be necessary to await the course of events before an accurate diagnosis is possible. In the usual form of this affection the onset is gradual, a history of syphilitic infection is rare, and ataxia of the legs is an early symptom ; it is not improbable, however, that the lesion underlying the syphilitic form of spinal paralysis may lead to the condition in the spinal cord which is characteristic of ataxic paraplegia—viz., a descending degeneration in the crossed pyramidal tracts, and an ascending degeneration in the posterior columns.

The relation between this form of myelitis and syphilis has next to be considered. In all Erb's cases there was a history of

syphilitic infection, as also was there in those described by Kowalewsky and Muchin, who, although regarding syphilis as the chief cause, do not deny the possibility of other toxic agents producing the same series of symptoms. It differs, however, from tabes dorsalis in some important etiological features. Of 22 cases observed by Erb the first symptoms were noticed in 13 within three years of infection, and in 18 within six years, while only 4 occurred between nine and twenty years after infection. In tabes, on the other hand, 12·3 per cent. were noticed to commence within the first six years, while between six and fifteen years after infection the earliest symptoms were observed in no less than 64·7 per cent. From this it is seen that syphilitic spinal paralysis is an early post-syphilitic spinal disease, while tabes is relatively late. It is more difficult to obtain accurate facts as to the frequency of this affection relatively to tabes dorsalis. Kowalewsky's figures are probably too high; of 152 cases of syphilitic affection of the central nervous system 38 were cases of tabes, and 21 of syphilitic spinal paralysis. These observations were made at a spa in the Caucasus, to which tabetic patients do not appear to resort in large numbers. Erb's figures probably give a more correct estimate: in ten years 400 cases of tabes came under his observation, and only 35 of this form of syphilitic disease. The condition has so far been observed only in the male sex.

The prognosis is favourable, both as regards life and improvement in the paralytic symptoms. The following case illustrates the amount of recovery which may be reasonably expected under suitable treatment in advantageous circumstances.

Case 2.—A man 45 years of age contracted syphilis seventeen years ago. Twelve months after infection he was seized with partial paraplegia and loss of power of the bladder and rectum, and at the same time he became impotent. Under suitable treatment the symptoms improved, and I saw him first sixteen years after the onset. His gait was not spastic, but the left leg dragged a little from a slight weakness in dorsally flexing the left foot. The knee-jerks were glib, the left being rather more active than the right. The only sensory symptoms were slight numbness on the outer side of the left calf, and a dull, aching sensation over the sacral region. Urination and defæcation were normal, unless the bladder and rectum were distended, when control was feeble. When standing with the eyes shut there was a tendency to sway, but this soon passed off. He has been impotent since the attack, sixteen years ago.

Recovery to this extent, however, is not always to be expected. In a certain number of cases, where in all likelihood the white columns of the spinal cord have been damaged to a considerable

extent, the symptoms may persist; while in a few instances death may ensue from extension of the inflammatory condition over a large portion of the cord.

What are the place and nature of the lesion which gives rise to these symptoms? Their combination points conclusively to an affection of the lower dorsal segment of the spinal cord, and to an involvement of the white matter considerably in excess of the grey. The comparative absence of motor paralysis, combined with a markedly spastic gait and great exaggeration of the knee-jerks, indicates pressure from an interstitial exudation (probably gummatous) upon the fibres of the crossed pyramidal tracts, rather than a solution of their continuity. The exact nature of the pathological process is, however, chiefly a matter of speculation, since, as already indicated, these cases do not present themselves for examination by the pathologist. The mode of onset, extending over several weeks, is against a hemorrhagic or acute inflammatory process, and is in harmony with a subacute gummatous infiltration, associated or not with gradual blocking of the arteries from thickening of their walls.

The treatment should be carried out on general principles. As soon as the patient comes under observation anti-syphilitic remedies should be pushed to their furthest limits, iodide of potassium and mercury being administered for six weeks or two months. During this period the patient is preferably confined to bed, and gentle massage applied to the limbs. It is better to avoid either form of electricity. Attention should be frequently given to the bladder, and the catheter used when necessary. Galvanism applied to the spine for the impotence which usually results from this affection is not likely to be of much service.—*The Lancet, May* 5, 1894, *p.* 1124.

DISEASES OF THE ORGANS OF CIRCULATION AND RESPIRATION.

18.—ON CARDIAC ASTHENIA OR HEART-EXHAUSTION.

By J. M. Da Costa, M.D., LL.D.

It is my purpose to describe in this paper a form of weak heart that is not clearly recognised, yet that has features of its own. Weak heart, as it is commonly known, comes from organic causes, such as fatty degeneration, dilatation of the heart,

myocarditis ; or we notice it after acute diseases, as after typhoid fever, influenza, diphtheria, in which some special poison has affected the circulation ; or as the result of more chronic poisoning by tobacco, alcohol, lithæmia, and gout ; or of anæmia and deteriorated blood. But this is a familiar knowledge, and not the kind of weak heart here to be investigated. I rather desire to examine the kind in which there is for a long period habitual feeble action of the heart, and in which this constitutes the essential and only appreciable disorder.

This heart-feebleness or heart-exhaustion comes from two causes : it is due either to nervous failure or to a weak heart muscle ; in some instances to a combination of both. It will for the present serve our purposes best if these cases of essential weak heart from nervous causes are first described, and if we then endeavour to ascertain the signs by which they may be told apart from the instances of muscular weakness.

The affection generally manifests itself in those whose nervous system has been strained by worry or by overwork. It shows itself frequently by a veritable and sudden cardiac collapse, though the causes that have led to this become apparent enough when inquired into, and there have been warning signs. The patient is obliged to stay in bed ; all attempts at sitting up produce a sense of swooning and a vanishing pulse, or there is actual fainting from time to time. The heart's action is feeble, the pulse very small and compressible, and generally increased in frequency ; there is a sense of uneasiness in the cardiac region, but very rarely actual pain ; the extremities and the nose and ears are cold ; the general temperature is somewhat below the norm. The capillary circulation is poor, the skin pale, occasionally injected or flushed ; sweating is the exception. The breathing is conspicuously unaltered, although there may be a sense of oppression. "I am out of heart rather than out of breath," was the expression of a very observant patient, who added : "The heart has taken possession of the whole chest." The reflexes are unimpared or sluggish. The appetite is poor, though there are no marked gastric symptoms ; the bowels are constipated. Insomnia may be complained of ; apprehension and low spirits are very common. From this state of depression and disturbed circulation the patient rallies but slowly. It is one or two months before he can sit up without inclination to faintness, and months more before he recovers. The course of the disease is as markedly chronic as the onset has been markedly rapid.

The heart's action is mostly accelerated, but not irregular. It is very variable, always rises markedly after meals, and is influenced by the slightest exertion. Slow pulses, pulses under 60, are, however, quite the exception. The pulse is feeble, very

compressible, at times almost imperceptible. The heart's action is influenced by position, but not to the extent to which I have seen the irritable heart influenced.

The physical signs of the heart disorder are very significant. There is no increased percussion dulness, the impulse is feeble, difficult to find, not diffuse. The first sound is short, lacking in volume, and may be obscure or short and valvular; the second is not accentuated. Excluding anæmic murmurs, which are very infrequent, since anæmia does not play an important part in the affection, we may have, though this is also rare, functional apex murmurs of dynamic origin, and these murmurs may be brought out, as shown by Dr. John K. Mitchell (*Transactions of the College of Physicians of Philadelphia*, 1892), by suddenly closing the hand tightly. A sensitiveness to touch in the cardiac region is at times noticed.

That the nervous system is very decidedly affected is evident. Indeed, most cases happen in those who from overwork or worry have had their nervous tone markedly lowered. The breakdown is primarily in the nervous system and not in the heart. The cardiac malady is throughout neurosal rather than muscular. The malady is not hysterical, as in the great majority of cases hysterical symptoms are conspicuously absent. But I have known them to come on when the case was of long duration, and I have seen two marked instances of this in men.

It is strange how the cardiac asthenia may be antecedent to or alternate with other manifestations of nerve disorder.

The disease is one of all ages except childhood and very old age. The great majority of my cases have been in men. I have seen a number of instances among physicians. It is always a long-drawn-out affection.

The diagnosis is not, as a rule, difficult. The evident nature of the causes that have given rise to the heart-wreck, its generally sudden onset, the unembarrassed breathing, the feebleness of the pulse and of the cardiac impulse, are full of significance. The physical signs as well as the state of the respiration and the clinical history separate the weak asthenic heart from the weak heart of organic type, such as the typical ones of this group—fatty degeneration and cardiac dilatation.

From other members of the functional group, as from the irritable heart, it is also distinguished by the history, by the fact that in this malady the patient has had a heart-strain or a gastric or an intestinal affection, that he is able to be about, that the heart's action is generally much more rapid, much more influenced by change of posture, that the impulse is sharp, jerky, diffuse, the pulse quick, small, not so faint, the second cardiac sound sharp and distinct. The tobacco heart resembles the asthenic heart much more closely. Indeed, I am inclined to

believe that it is in the main identical, though stopping short in degree. We often observe the same feeble impulse, the feeble pulse—apt, however, to be more irregular and intermitting—respiration but slightly disturbed, a short, valvular first sound, and insomnia and nervousness. I found all these symptoms noted in a patient seen the other day, who smoked daily not less than twelve to fifteen of the strongest cigars obtainable, besides chewing incessantly, and in whom the pulse was 96, the respirations were 20; there was also tremor to such an extent that he could hardly write.

The most difficult point in diagnosis is to distinguish the weak heart of nervous origin from those much rarer cases of inherent muscular weakness in which, however, no obvious disease of the muscle exists. I made these, at the beginning of this paper, the second group of weak heart. It is very much rarer than the nervous form, and very much more persistent. The symptoms are the same as regards the feeble circulation, but there is this decided difference: shortness of breath, especially on exertion, is very common, and œdema of the ankles and insteps, passing though it be, is often met with. The physical signs in the heart do not differ, except that the first sign is more toneless, undefined, not so valvular; reduplication of either sound of the heart is much more usual, and so are functional dynamic apex murmurs. I have endeavoured to ascertain whether the sphygmograph enables us to distinguish between these two groups of cases, but as yet without satisfactory result.

In the asthenic nervous heart the prognosis is very good. Under treatment and in time they all recover. There is danger from so-called heart-failure, but I have never met with an instance. I cannot say the same for the heart weak from muscle weakness. I remember one instance that I saw with a medical friend, in which with only a very moderate amount of bronchitis a sudden and unlooked-for fatal collapse occurred. The epidemic of influenza through which we have been passing has given me the opportunity of witnessing how badly these weak hearts bear the strain of acute disease. In two instances in which I had known of the existence of the feeble heart-muscle for years, life was only saved by the most strenuous exertions; in one, the issue was for days doubtful. On the other hand, in the asthenic nervous heart, certainly when it has once regained its tone, acute diseases does not produce fresh heart-exhaustion.

For the cases of asthenic nervous heart, rest in bed is at first essential, and, when they are able to sit up, nothing does them so much good as graduated shower-baths. Massage, too, may be employed, but many cannot at first bear it, and it comes in better at a later stage of the treatment. It is then, too, that

Swedish movements may be recommended, and carefully adjusted exercise, such as walking, or gentle horse-back exercise, or light gymnastics. These agents can be resorted to from the start, where the weak heart depends on a weak heart-muscle. From Swedish movements they are specially adapted to promote the flow of blood and to strengthen the heart, I have seen in this class of cases great good. The action of the heart has become distinctly stronger and more regular, and in young persons I believe a permanent curative result may be accomplished. The food should always be as nutritious as possible, taken as frequently and in amount as large as the digestion will readily tolerate, and stimulants often have to be resorted to. It is astonishing in what quantities they are borne, and temporarily even required, in the nervous heart; though, for fear of forming a habit, we have to withdraw them as soon as the circulation strengthens. The tendency to constipation demands attention, and is to be remedied by means of diet and of light laxatives.

Among drugs strychnine stands pre-eminent. It is suitable to both the forms of weak heart under discussion. The dose need not be large—rarely exceeding one-thirtieth of a grain three times daily—but it must be continuous. Iron is not called for except when a complication with anæmia exists, or later in the case as a general tonic, and its tendency to constipate makes it often a doubtful remedy. Arsenic, in the nervous asthenic heart, comes next to strychnine. Its action cannot be explained by its removing anæmia, for it proves to be valuable where the blood-count shows this not to exist.

Of so-called heart tonics digitalis is the best, but it is not the certain remedy we might suppose. It is on the whole best adapted to the cases with muscle weakness. Where we give it in large doses the patient should be kept in bed. In a number of instances it does not suit at all. Strophanthus is generally said to be inferior to digitalis. I have used most of the other remedies of this class in different cases. Adonidin and chloride of barium have done me at times good service; cactus and convallaria have been disappointing. The latter I have ceased to use. Caffeine and cocaine are both valuable, but their action cannot be kept up; from cocaine we would run the risk of establishing the cocaine habit. It is, however, very serviceable during urgent symptoms of failing heart. Nitroglycerine is not of much avail, except there be cardiac pain, or in combination with remedies like digitalis, which act more distinctly on the force of the heart. Bromides, valerian, and opium ought to be left to meet special indications of nervous disturbance.—*The American Journal of the Medical Sciences, April*, 1894, *p.* 362.

19.—ON THE DRUG TREATMENT OF PHTHISIS.

By F. C. Coley, M.D., Physician to the Hospital for Sick Children, Newcastle-on-Tyne.

The first drug to which I propose to make reference is guaiacol carbonate.

The exact therapeutic value of guaiacol carbonate is a very complicated question, the rather because it is not (like the other remedies to which I have to refer) credited with power of controlling any special symptom. It appears rather to influence favourably the general condition of the patient, and to enable him to gain both in strength and weight. But to gauge the amount of credit due in any case to a given remedy must be a very complicated question in a disease so variable in its course as phthisis.

But happily we are not entirely dependent on direct experiments with guaiacol carbonate itself. Creasote has been tried quite sufficiently to fairly establish its therapeutic value. Especially in France it has been used so extensively as to leave small room for doubt about its power to check the course of phthisis very materially, in those cases where it can be tolerated in adequate doses. This last is just the weak point of creasote as a remedy. Now guaiacol carbonate has a fair right to claim as evidence in its own favour all the accumulated experience upon which the therapeutic reputation of creasote rests. And a comparatively limited trial is quite sufficient to prove that it is not open to the objections which so commonly militate against the use of creasote. Guaiacol carbonate is not quite tasteless, but the creasotish flavour which it has is not strong enough to be at all seriously disagreeable. I have found that children take it without making any special objection. Indeed, many appear actually to like it. I remember only one patient who complained of its taste at all, and she was also the only one who spoke of any considerable nausea following it. In her case the difficulty was overcome by administering the drug in compressed tablets. In all other cases it has been taken readily enough in the form of powder. I have given it to children of the age of nine years and upwards, in doses reaching up to gr. xv., night and morning, and I have never seen the least sign of intolerance by the stomach, or any ill result. It has been my custom to begin (in the case of adults) with gr. v. every night, gradually increasing the dose, and afterwards giving it in the morning, as well as at night; but this caution now appears to be unnecessary, however reasonable it might have been in trying a new remedy. I believe it will be quite safe to recommend gr. xv. every night as an initial dose for an adult. After a few days' trial it may

be given two or three times daily, and the dose may be gradually increased. As much as 75 grains (in divided doses) have been administered daily. But I have not myself, as yet, gone beyond 50 grains daily ; although I believe it is quite possible that the larger doses may be beneficial, and I have seen no reason to believe them to be dangerous.

Guaiacol carbonate does not appear to have the power of checking tuberculous diarrhœa : nor can I say that I have observed any direct effect upon cough or expectoration, or physical signs. Nor can I claim for it any well-marked power of controlling temperature. But appetite and general health improve, and weight is gained under its administration.

Perhaps the chief objection to the general use of guaiacol carbonate is its cost. But that we may hope will be less when the demand for it is greater.

Salol.—I have found salol very successful in the treatment of the diarrhœa associated with phthisis. Remarkably small doses (gr. v. every morning for an adult) are often sufficient, though occasionally gr. x. two or three times daily may succeed where smaller doses have failed. I may remark, in passing, that the same remedy is often useful in the septic diarrhœa of children : but proportionally larger doses are required.

Morrhuol Creasoté.—Another remedy which has sometimes given good results in tuberculous diarrhœa is *morrhuol creasote* (prepared in capsules by Rigand and Chapoteaut of Paris). Morrhuol is a material extracted from cod-liver oil. It has been recommended as possessing the medicinal power of the oil from which it has been separated.

Pure Terebene.—I am in the habit of prescribing terebene in combination with cod-liver oil in cases of phthisis—ten drops of terebene being mixed with each dose of oil. Terebene is obviously eliminated in the breath. It is to be recommended especially in those cases where the expectoration is profuse or offensive, and where there is a tendency to hemorrhage. Moreover, patients often tell me that the cod-liver oil "agrees better" when combined with it. On the other hand, the terebene itself occasionally disturbs the stomach. I have very rarely found it to cause any irritation of the urinary organs.

Intra-laryngeal injection of Menthol.—I must own that when I first saw this method of treatment described in the medical journals I was not favourably impressed with it. It appeared to me like some other therapeutic inventions, which only a German physician would attempt to use, and only a German patient would tolerate. But when my prejudices were so far overcome as to induce me to make trial of the method, I soon found that it gave the patient no such annoyance as I had anticipated, and the good results were far beyond my expectation.

I am indebted for the formula which I use to a paper in the *British Medical Journal* for April 12, 1891, by Dr. Downie. It consists of menthol 20 per cent. with guaiacol 3 per cent. dissolved in olive oil. Dr. Downie recommended vaseline oil. But I have not been able to perceive that it has any great practical advantages over olive oil.

The laryngeal syringe should have a delivery-tube with a single terminal opening—not a number of minute lateral openings, as in most laryngeal syringes which I have seen. The syringe which I use has a glass barrel and a delivery-tube of vulcanite. But a silver delivery-tube might be preferable. The syringe should be capable of holding a fluid drachm, which is the largest amount which I have found it expedient to inject at one sitting.

The point of the syringe should be guided, by the help of a laryngoscope, into the upper part of the larynx. It is not necessary to insert it between the vocal cords: it is quite sufficient to get it past the epiglottis. From ℥xx to ʒss of the solution is injected at once. After a pause of two or three minutes this may be repeated. If there is any tendency to cough, the patient should be told to repress it; and usually there is little difficulty in doing so provided the injection has been neatly managed. It is obvious that the dexterity which can only be acquired by practice has much to do with the success of this method of treatment. A great point is to see that the patient is making deep respirations while the injection is being given. This secures the wide patency of the rima glottidis, which is necessary for the satisfactory descent of the solution into the trachea.

The syringe should not be completely emptied when the final injection is made. Then the extrusion of the few drops of solution remaining serves to prevent any trace of mucus from being allowed to occupy the lumen of the delivery-tube. This should be first carefully wiped with dry cotton-wool (to be burnt immediately, of course), and then with cotton-wool wet with carbolic acid and glycerine in equal parts. The tube should then be dipped in the same, and left wet with it. This appears to me the best method of sterilising the syringe after use, the necessity of which must be obvious. The carbolised glycerine has no injurious action on vulcanite. I am accustomed also to soak the laryngeal mirrors in the same for at least six hours (washing them thoroughly first) after use.

The dyspnœa of phthisis is often relieved in a very striking manner by these injections, and the relief from cough often lasts for two or three days. The rest and sleep which are thus secured (without the drawbacks which attend the administration of sedative cough mixtures) are a material help to the patient

in the struggle against the disease; and in some cases there appears to be a direct effect upon the local morbid processes. Any patient who is able to tolerate an ordinary laryngoscopic examination can bear these injections, provided they are administered with a reasonable degree of expertness.

Inhalations.—Where the intra-laryngeal injection of solution of menthol cannot be used (or perhaps in addition to it), inhalations are sometimes very serviceable. I generally prefer one of Dr. Coghill's formulæ, namely :—Tr. Iodi Ætherealis ℥ij, Acidi Carbolici ℥ij, Creasoti *vel* Thymolis ℥j, and Spiritûs Chloroformi ad ℥j. Dr. Burney Yeo's inhaler, made of perforated zinc, is the best, and it also has the merit of cheapness, as it costs less than a shilling. The iodine does not seem to act upon the zinc to any inconvenient extent. About ten drops of the liquid should be used at a time. This often gives much relief in the paroxysms of coughing. About half a teaspoonful of eucalyptol or pure terebene may be sprinkled on a handkerchief, and so allowed to vapourise as near as possible to the nose and mouth of the patient as he lies in bed.

With a similar purpose I have recommended that carbolic acid should be vapourised at night in the bedroom. Calvert's simplest form of vapouriser (costing about 1s. 6d.) is very suitable. It is used with a dry powder charged with a proper quantity of carbolic acid. This sometimes appears to give relief to the cough at night; and it is reasonable to expect from it a favourable influence on the general course of the disease. I may mention, in passing, that I have found it extremely valuable in the treatment of pertussis.—*The Practitioner*, *October*, 1894, *p.* 272.

20.—ON THE DIETETIC TREATMENT OF PHTHISIS.

By H. P. Loomis, M.D., New York.

All consumptives pass through three distinct stages in regard to their digestive powers : (1) The period during which digestion and appetite are unaffected. (2) The period from the time when gastric disturbance first begins until the stomach refuses solid food. During this time septic infection is more or less constant, the fever intermittent, and loss of flesh generally progressive. (3) The period from the time when solid food can no longer be taken without digestive disturbances until the death of the patient.

These digestive stages do not necessarily correspond to the recognised physical stages of the disease, but as the diet of these stages varies it is practical to divide the disease in this way.

First Stage.—As soon as the disease is diagnosed systematic dieting is commenced. This is often overlooked, although of such paramount importance. The digestive powers are normal, why limit the diet? some might ask. The object in the early stage of phthisis is, as quickly as possible, to carry the amount of nutriment, and with it the resisting powers of the patient, up to the highest point. This cannot be done by means of the ordinary three meals a day; forced feeding is absolutely essential. Well-defined rules as to diet should be laid down and rigidly adhered to.

Albuminoids and carbohydrates should form the basis of the three principal meals. Meat should be eaten rare and with all meals. If the patient is over 30 years old a large amount of meat is essential, and can be more easily taken. Two pounds of beef, at least, should be eaten in the twenty-four hours, or its equivalent in beef-juice. If poultry is served, the dark meat is preferable to the white. Sweetbreads are often tempting, and may assist digestion. Soft-boiled eggs for breakfast are advisable. A raw egg sucked from the shell will often relieve an irritable condition of the pharynx. Butter should be freely used. Cream on cereals, or diluted with seltzer-water, is of benefit in certain cases.

Milk should constitute the principal drink, and should be ordered between each meal, also a glass or more with the meals. In this way from two to three quarts can be taken in the twenty-four hours. To avoid monotony the articles of diet, such as vegetables, &c., ordinarily taken with meals, should not be restricted; except that all indigestible articles, such as rich pastries and sweets should be avoided. The starchy and farinaceous foods should be taken sparingly. While the diet is largely nitrogenous, a sufficient proportion of carbohydrates must enter into it. Fats and oils, especially from the animal kingdom, will furnish this. Butter should be freely used.

Cod-liver oil, which is really not a medicine, but a food, should be taken in tablespoonful doses after each meal. Whether directly after the meal, or after a half-hour interval, must be decided according to the personal idiosyncrasies of the patient. When it is impossible to give the pure oil on account of its taste, or because it causes indigestion or eructation, it is wise to give an emulsion of cod-liver oil, pepsin, and quinine, which can be readily taken by almost any one. Often the pure oil can be taken when floated on whisky. During the first stage the phosphates are valuable, and it is advisable to give food which, owing to the presence of phosphates, is desirable. However, it must be remembered that to supply the phosphates in sufficient quantities, special preparations must be made use

of. The hypophosphites should be given after meals diluted in water. In certain cases they are even more valuable than cod-liver oil.

Second Stage.—This is the period which will most try the physician's patience, and is the one in which systematic diet is absolutely essential. The relief from coughing, fever, and digestive disturbances experienced by this class of patients, in following the dietetic regimen prescribed, is of great help to the physician, as a guarantee that his directions will be implicitly followed.

In this stage the diet varies rather in the methods of preparing the food than in the food itself. The patient is still fed six times a day, but the meals are restricted. All foods should be offered in the most palatable form, and generally given finely subdivided. This is the stage when beef-juice and scraped beef are specially indicated. A small glass of the former in the middle of the forenoon and afternoon, with a water-biscuit and a scraped meat-ball or raw-meat sandwich for lunch or dinner, will materially aid nutrition. In many cases, a glass of porter or ale, with lunch or dinner, will be of a great benefit in increasing appetite and adding flesh.

Milk, plain, with lime-water, or boiled, should be given early in the morning, at bed-time, and between meals; but I have learned by experience that this should never be taken at the same time with beef-juice. When milk disagrees with patients kumyss should be substituted, to the amount of three or four bottles a day. With the exception of the malt liquors with meals, stimulants during this stage are apt to do more harm than good. Cough mixtures should never be taken if they can possibly be avoided. The syrups and narcotics which they contain are almost certain to produce digestive disturbance, in spite of the most rigid dieting. Cod-liver oil will be required, but the greatest care must be used in its administration. The emulsion spoken of in the first stage will often be assimilated without any trouble. Especially in patients in middle life, the pure oil with whiskey will give the best results. Other cases can take cod-liver oil in capsules. Still others can only take the oil in the mixture known as hydroleine. I feel so sure of the great benefit derived from cod-liver oil in this stage, that all known methods of administering it should be tried before it is abandoned. The duty of the physician who regulates the diet of phthisis does not end there. He must watch the condition of the stomach and intestines, that they may welcome and absorb the nutritive food furnished so often. Especially in this stage he must make use of digestive ferments to aid assimilation, such as pepsin before and hydrochloric acid or pancreatin after meals. In this way the patient may be enabled to digest an

amount of food liable, under ordinary circumstances, to cause dyspepsia. In cases of a catarrhal condition of the intestines the systematic drinking of a half to a pint of hot water before meals will prove beneficial. It is especially important that the condition of the bowels be watched, and if possible a daily evacuation obtained.

Third Stage.—As persons who have reached this stage are generally hopeless cases, all that we can expect by diet is to prolong life under the most comfortable circumstances; much of the distressing coughing and vomiting from which these patients suffer can be controlled by attention to the quantity and kind of food. It is well to give up the idea of three hearty meals a day, and for a time, at least, feed the patient every two hours in small quantities. This is the time when the artificially digested preparations, such as beef peptonoids, do so much good. Milk with lime-water can be alternated with them with advantage; often it is necessary to peptonise the milk, and sometimes it has to be given up entirely. Stimulants often repeated, say once in four hours, and in small quantities, generally help this class of cases a great deal. Stimulation and feeding should be kept up regularly during the night, when the patient is awake. Equal parts of porter and lime-water are generally well taken and are often of great benefit. It is a well-known clinical experience, that patients in the last stages of phthisis have times of perfect freedom from any digestive disturbances; they can apparently digest almost anything without trouble. When these times come it is advisable not to restrict their diet, but to allow them anything they crave, remembering that on the least indication of dyspeptic trouble the restricted diet must be resumed. Fresh fruit in this class of cases ordinarily does no harm and is very refreshing. In those cases where the taking of food into the stomach is almost sure to excite paroxysms of coughing which induce retching and vomiting, it is advisable to stop all food and commence artificial feeding through the soft stomach-tube. I cannot agree with some, that feeding through a stomach-tube is applicable to most cases. The natural repugnance which persons have to its use must limit its application to exceptional cases, to those whose physical or psychical disability prevents super-alimentation by less distressing methods. Where it can be used the person can be made to digest and assimilate more food than he would be willing to, or could swallow; the patient is, as it were, stuffed to his utmost capacity. Credit should be given to Debove, who introduced this method and demonstrated what is meant by sufficiency of alimentation, namely, the extreme limit of assimilation.—*The Practitioner*, *May*, 1894, *p.* 325.

21.—ON OPIUM AND STRYCHNINE IN ACUTE PNEUMONIA.

By Percy Kidd, M.D., F.R.C.P., Assistant Physician to the London Hospital.

Opium.—In an interesting paper contributed to the *British Medical Journal* in 1891, Dr. Wilks recalled attention to the value of opium in several diseases in which it has been commonly said to be contraindicated. There are perhaps few diseases in which opium does better service than in pneumonia when judiciously employed. Some writers have recommended the use of the drug in the early stages of the disease to quiet the patient, relieve pain, give him sleep, and husband his strength for the period of the crisis. Others have used the same remedy in the later stages, to counteract the exhausting effects of delirium and insomnia. The only definite contra-indication to the use of opium appears to us to be furnished by symptoms of impending exhaustion of the respiratory centre—shallow laboured respiration, drowsiness, and a tendency to cyanosis. Opium is certainly not a drug to prescribe in a routine way, though it is not denied that excellent results may be adduced in favour of such a practice. Owing to the marked tendency to recovery manifested by pneumonia, it is confessedly very difficult to gauge the results of rival methods of treatment. In no disease is it more important to treat each case on its own merits.

The chief indications for giving opium, with the reservation just mentioned, seem to be these—severe pain that cannot be controlled by other measures, insomnia, restlessness, and delirium. It is not of course claimed that every case manifesting these symptoms should be treated with opium : at the same time such symptoms may be often effectually and always safely treated by opium at any stage of the disease. My late house physician, Mr. A. C. Elsmore, M.B., fired by a perusal of Dr. Wilks's paper, made extensive observations on the use of opium in pneumonia during his period of office, and I have to thank him for careful notes of many of the cases.

The drug was mostly given in one considerable dose at bedtime, either in the form of Dover's powder (10 grains) or a hypodermic injection of morphine ($\frac{1}{6}$ to $\frac{1}{4}$ of a grain). In one group of cases, Dover's powder was given every night from the time that the patient came under observation until the crisis. In another class the same drug was given for the first three or four nights, and was discontinued after its good effects had been manifested. Lastly, in a third class, morphine was injected once or more for the relief of some particular symptom. It does not

appear that any marked difference was noted in the results derived from the several methods of administration. It seems best on the whole to restrict the use of opium to the relief of definite symptoms, and then to give one fair-sized dose, followed if necessary by a second.

Mr. Elsmore's notes show that the number of respirations was generally reduced by 10 to 12 in the minute, the pulse being either unaffected or exhibiting a very transitory reduction in the number of beats. No marked effect on the expectoration could be traced. In one fatal case, associated with severe alcoholic delirium, opium had little or no effect, though injections of hyoscine ($\frac{1}{100}$ of a grain) gave temporary relief. But in another case of delirium tremens, which ultimately succumbed, morphine for many nights gave the patient six or seven hours' sleep without exercising any prejudicial effect. In this patient death occurred on the twenty-fourth day, and was shown by the autopsy to be due to an independent pyæmic process. In several severe cases of double pneumonia with delirium and insomnia the free use of morphine appeared to save life.

Strychnine.—The only other remedy to which I shall refer is strychnine. This drug I have used for some years since reading a paper by Dr. Herbert Habershon published in *St. Bartholomew's Hospital Report* for 1886, in which he narrated a series of cases of cardiac failure treated by strychnine. His list included in addition two cases of double pneumonia. In this paper Dr. Habershon insisted very rightly on the importance of giving strychnine by hypodermic injection, on account of the imperfect and slow absorption from the stomach in severe disease. Dr. Habershon also expressed the opinion that the efficacy of strychnine is due to its action being exerted on the excito-motor nerve apparatus of the heart and on the respiratory centre. For, as he points out, strychnine often succeeds when other remedies like alcohol and ether have failed, the effect of these being largely directed to the muscular fibres of the heart and to the arterioles. The action of strychnine brings indirect support to the view already expressed, that in pneumonia what we have to fear is the influence of toxines on the nervous system. On this hypothesis cardiac failure is really only an expression of exhaustion of the nerve-centres, and is therefore an indirect effect of the poison.

The drug was employed mainly in the tabloid form, $\frac{1}{60}$ of a grain being dissolved in 4 or 5 minims of water and injected subcutaneously or directly into the gluteal muscles. The latter method is to be preferred, as it appears to cause less pain. The indications for the use of strychnine are mainly derived from the pulse. If the tension begins to sink, or if the frequency of

the beats be much increased, strychnine should at once be tried. If the respiratory movements also become less vigorous, an additional reason is afforded for the use of the drug. The action of strychnine in increasing the tension and size of the pulse, as well as the vigour of the respiratory movements, is often manifested in 10 to 15 minutes. When the rally is not maintained, $\frac{1}{60}$ of a grain may be injected every two hours, until three or four doses have been given, the injections being afterwards continued at longer intervals, once or twice in twenty-four hours, until the pulse and respiration right themselves. Indications for persisting with the strychnine must be mainly sought in a careful consideration of the pulse. If the heart seems to answer to the injections they should be persevered with at intervals, for at least twelve to twenty-four hours, until the danger is averted. If no definite result is produced on the pulse, the treatment must be suspended. In one severe case of double pneumonia, with great restlessness and irregularity of the pulse a few hours before the crisis, injections of strychnine produced an excellent result, the pulse became more regular, and the patient passed safely through the crisis. In another case, in a young man with wild delirium (apparently not alcoholic), which had resisted large doses of chloral and bromide of potassium, strychnine seemed to quiet him and improve his pulse, the patient making a good recovery. Delirium has been regarded by many authors as an indication for alcoholic stimulation. In some cases at least injections of strychnine are more satisfactory, the effect being produced probably in an indirect manner through its action on the cardiac and respiratory centres.—*The Practitioner, September*, 1894, *p.* 190.

22.—INTRA-LARYNGEAL INJECTIONS IN THE TREATMENT OF DISEASES OF THE LARYNX, TRACHEA, AND BRONCHI.

By Adolph Bronner, M.D., Laryngologist to the Bradford Infirmary.

In the treatment of diseases of the larynx, trachea, and bronchi it is naturally of great importance that we should apply remedies locally, and the better able we may be to do so, the better must be our chance of curing the diseased mucous membrane. I take it that in treating laryngitis and bronchitis accompanied as they mostly are by irritation and cough, we aim, roughly speaking, at two things: firstly, to cure the disease,

and, secondly, to relieve the cough. We know that if once we can remove the irritation the chances of curing the disease are very much better. Now in cocaine and menthol, especially the latter, we have remedies the local application of which in many cases relieves the cough at once and sometimes for hours. I generally use a five to twenty per cent. solution of menthol in paroleine. This is a mineral oil, colourless and tasteless, and obtained by the fractional distillation of petroleum. It does not irritate the mucous membrane and does not become rancid. According to the prevalent method of treatment we try to relieve the cough by sedatives which cannot but be injurious to the patient. We know that the local application to the mucous membrane of other parts of the body of iodoform, nitrate of silver, lactic acid, menthol, salol, and europheen is followed by excellent results. These are some of the drugs which can safely be injected into the larynx. I may add that in speaking of intra-laryngeal injections I mean injections through the glottis into the cavity of the larynx and not injections under the mucous membrane. The injected fluid passes into the larynx and trachea, and readily enters the larger bronchi. Experience proves that large quantities of non-irritating and aseptic fluid can be safely injected into the trachea and that they are absorbed. Botey injected from one to two grammes of distilled water into the trachea of rabbits with no bad results. He injected up to fifty grammes into his own larynx. Philip in speaking of intra-laryngeal injections in the treatment of tuberculous disease of the lungs says: "So simple indeed is this method that I have been led to make use of the respiratory mucous membrane for the absorption of a variety of remedies when the gastro-intestinal tract was not available." Schmaltz speaks of injecting up to 100 grammes of an alum and salt solution into the trachea of horses through the skin in the treatment of chronic atrophic laryngitis. In cases of morbus maculosus he injects from ten to twelve grammes of a 1 per cent. iodine and a 5 per cent. iodide of potassium solution.

As regards the larynx and trachea, I take them together, as in most cases, especially if chronic, we know that not only the vocal cords and the parts above, but also the parts below the vocal cords, are affected. However much we may treat the vocal cords, we cannot hope to effect a cure as long as the parts below remain diseased. In cases of tuberculous laryngitis I use a from 5 to 20 per cent. solution of menthol in paroleine. We owe a deep debt of gratitude to Professor Rosenberg, who first recommended this remedy. In some cases, however, menthol causes great irritation and cannot be used. Guaiacol (2 per cent.) or salol (from 20 to 30 per cent.) can be added. Injections of salol seem to me to be very useful. Guaiacol and salol act not

only locally, but are also absorbed into the system. Balsam of Peru can also be injected. Philip used balsam of Peru and eucalyptus dissolved in chloroform and olive oil. Lactic acid up to 30 per cent. is recommended by Dr. Brehmer. Beding injects menthol and olive oil in the treatment of tuberculous disease of the lungs. Massini also uses menthol and creasote. Downie applied menthol and creasote or guaiacol. In the more severe cases we must of course also apply lactic acid with the brush and use the curette. In the treatment of chronic laryngo-tracheitis the injections are often very useful. This affection is very common in the north of England and although not dangerous in itself is certainly often accompanied by most distressing symptoms, and the patients are frequently not able to get a good night's rest for weeks or months. A similar cough is frequently met with in incipient phthisis. A patient of mine had been troubled with a tracheal cough for years and was on that account refused by a well known insurance company. About thirty injections of menthol and europheen completely cured the cough. In cases of chronic laryngitis from 1 to 5 per cent. solution of nitrate of silver or a from 5 to 30 per cent. solution of lactic acid can be used. The injections also give excellent results in the treatment of chronic dry or atrophic catarrh of the larynx. This disease is very prevalent in Yorkshire among the poor, due, I believe, partly to the damp climate and partly to the fact that so many people work in badly ventilated mills in which much gas is burnt. The effect of intra-laryngeal injections is most marked in the treatment of fetid bronchitis and of bronchiectasis; after twenty or thirty injections the offensive odour of the expectoration may disappear altogether, and for some time. Europheen, guaiacol, or salol can be used. I have recently been trying weak solutions of myrtol and oleum pimentæ, and find the results are excellent and lasting, and I hope at some future time to publish a number of cases treated with these remedies. Professor Grainger Stewart has successfully treated several cases of bronchiectasis with injections of a solution of menthol (10 per cent.) and guaiacol (2 per cent.) in olive oil. In former years strong solutions of nitrate of silver were injected in the treatment of laryngeal croup and diphtheria. Lorseau recommends this method in preference to tracheotomy. Trousseau has also tried nitrate of silver, but prefers tracheotomy.

The stronger remedies can, of course, only be applied under the guidance of a laryngeal mirror; but the non-irritating injections, such as menthol and guaiacol, can be used without the mirror, and in many cases the patients learn to inject themselves. It is to this fact to which I should like to draw particular attention. It is not everybody who can afford the

time or money to see a medical man daily for weeks or even months, as may be necessary in some cases. I use a silver and glass syringe, which can be sterilised. A similar syringe can be ordered for the patient. Down of London and Pfau of Berlin make some very cheap aseptic syringes. If used by the patient the syringe should be sterilised at least once a week, and, if used by the surgeon, after each injection; or each patient should have his own tube, which can be attached to the end of the syringe. Vulcanite syringes are difficult to sterilise and should never be used. The fluid injections should also be sterilised.

The use of intra-laryngeal injections in the treatment of diseases of the larynx and bronchi is nothing new or original. As far back as 1852 we find that Theophilus Thompson described a glass and silver laryngeal syringe at a meeting of the Medical Society of London. In 1865 Bing recommended a similar syringe. The method is, however, not mentioned in most of the text-books, nor is it practised by many laryngologists. Dr. Max Schaeffer seems to be one of the few who recommend the method. I have found the injections so very useful in many cases that I have ventured to bring the subject before the meeting in the hope that some who have had a much larger and more varied experience than myself may give us the benefit of their observations.—*The Lancet, April* 28, 1894, *p.* 1062.

23.—ON THE TREATMENT OF HÆMOPTYSIS.

By Arthur Foxwell, M.D., F.R.C.P., Physician to the Queen's Hospital, Birmingham.

In primary lung disease we should look upon the bleeding point much as a surgeon would look upon a bleeding vessel in a sloughing ulcer of the leg, which he had to treat without the aid of any chirurgical skill. I take it he would be very ill-advised to employ ergot or any other vasomotor contractor, for the vessel in the neighbourhood of the bleeding point is diseased, its muscle fibres are degenerated, and therefore the drug will act less upon them than upon the fibres of all the other arterioles of the body; the injured arteriole it will not contract, but it will raise the pressure of the blood within it by its effect on all the healthy arterioles; the result will, therefore, be an increase rather than a lessening of the bleeding, unless, indeed, you should so press your ergot that the general contraction resulting produced heart failure, and in this way

lessened the flow of blood at the bleeding point, though not to so great an extent as would occur elsewhere. I do not think this procedure will for a moment commend itself to us; it is a far more dangerous and a far less efficacious method of producing heart failure (that is, faintness) than Nature's own. She does it by bringing the tension of the blood to a minimum, and the blood ceases to gush from the extreme weakness of the propelling force; there is the rest of sheer exhaustion; and during it mechanical and chemical (not physiological) forces create a plug for the hole in the relaxed and flaccid vessel. All the arterial system is in a state of half-empty flaccidity, so that the feeble flickerings of the heart have every encouragement to continue, for Nature has provided that it shall have the least possible work to do. And so life is kept going with the smallest possible amount of blood-pressure, thus allowing the plug the best possible chance of establishing itself. But in ergot faintness the blood, so long as it moves at all, must move under considerable pressure, and hence plugging will be much less likely to take place. Moreover, the strong contraction of the arterioles gives the worn-out heart far less rest, and it has to re-establish the circulation in the least, instead of the most, advantageous circumstances.

As to ergot itself, I think I have given it a fair trial. My routine treatment, when resident medical officer at the General Hospital, was 30 grains of Bonjean's ergotine injected deeply into the muscles of the buttock. I never saw any injurious effect, local or general, result from such treatment; nor can I say that I was ever able to definitely associate any cessation in the hæmoptysis with its use. But even were it good to contract the arterioles of the lungs, how do we know that ergot will do this? As I stated before, the calibre of the pulmonary vessels is under very different governance from that of the systemic ones, and I am aware of no evidence tending to show that ergot can contract them.

Venesection is, I think, sometimes of value at the outset; if the pulse be strong, the individual full-blooded, or if venous congestion exist, then it is easy to see how a timely venesection may diminish the loss of blood. For half a pint of blood withdrawn quickly will lower tension, &c., as much as a pint removed slowly; that is, the quick withdrawal of blood by venesection may do at once what Nature is striving to accomplish more slowly, namely, produce a faintness of the circulation.

Again, anything which keeps the blood in the systemic circulation, and so produces anæmia of the lungs, is beneficial. We know that the splanchnic area can contain all the blood of

the body ; any therapeusis, therefore, tending to fill this area must be good ; large doses of nitrites, which relax the systemic arterioles, should thus prove of service, as well as the constant supply of small portions of food so as to keep up a constant demand for blood in the alimentary tract.

To fulfil the same end ligatures may be applied to the thighs and upper arms to prevent the blood reaching the right heart, a procedure well spoken of by Walshe. Leeches to the anus or a hot foot-bath have proved similarly useful. Till faintness come on, the sitting posture is preferable ; in this way the head is less supplied with blood, and so less able to stimulate the heart's action than if the horizontal position were maintained.

Any means which may increase the coagulability of the blood is evidently of value. It is for this reason that the swallowing of gallic acid is recommended, though the method of its action is unknown to me. Nor do I think the evidence in its favour is considerable. That it does reach the blood in these cases is shown by the fact pointed out by Wood, that the blood spat up after its exhibition often has a greenish hue.

In July, 1893, Professor A. E. Wright, of Netley, made a communication to the *British Medical Journal* on the Value of Calcium Chloride as an Increaser of the Coagulability of the Blood. He showed, also, that in too large doses it delayed greatly the period of coagulation. In cases of chronic bleeding —for example, hæmophilia—doses of 5 grains taken thrice daily were most beneficial, but to produce a sudden and complete effect such as would be our desideratum in severe hæmoptysis, a large single dose of half a drachm would obtain the maximum effect which, in the professor's own case, reduced the coagulation time of his blood from 4 to $1\frac{3}{4}$ minutes.

Of all measures for the relief of hæmoptysis perhaps the induction of vomiting has the strongest clinical value of any, but the *rationale* of its action is certainly obscure, and, though I have thought much about it, I am in no position to offer any elucidation of the problem. It matters little what drug be employed for the purpose ; whether it be a local irritant, such as salt and water, or one acting on the centre, such as antimony. Personally, I prefer antimony, as it produces relaxation of the systemic arterioles as well.

Hydragogue purgatives are of extreme value, as they deplete the abdominal organs, and so enable them in turn to drain other parts of the body. Amongst them, calomel possesses a double virtue, as mercury is one of the best, if not the best, drugs we possess for lowering arterial tension. Its great antiphlogistic power adds still more to the efficacy of mercury.

The great thirst which often accompanies prolonged bleeding is best assuaged by the sucking of small pieces of lemon, as

the exhibition of fluid drinks, except as nutriment, is to be deprecated, our aim being to keep the quantity of the blood as low as possible and its quality as concentrated.

A cool atmosphere is supposed to be advantageous. There is no doubt it is so in the case of epistaxis, and the nose is one portion of the respiratory tract. So it is hoped that it will be so to the vessels of the lung parenchyma, though we must remember, first, that, whatever the temperature of the outside air may be, that in the air sacs is constant; and, secondly, cold air is a stimulant to cardiac action—an action we wish to depress. Hence I believe a warm room to be preferable.

I must not forget one important aid with which Nature has provided us; she has given us a most capable ligature in the elasticity of the lungs. As blood is effused, and more blood from the right heart takes its place within the vessel, the effused blood distends those alveoli into which it flows, and the elastic walls of these in turn increase the pressure which they had previously exerted, and so press the effused blood with increasing force against the ruptured wall of the vessel. This natural ligature it is evidently our duty to aid by all the means at our disposal, and for this reason I would shun any method of therapeusis which would accentuate the act of inspiration, such as the inhalation of astringent sprays.

The application of an ice-bag to the præcordium, inasmuch as it is a powerful cardiac depressant, is valuable, but, in so far as it chills the surface of the body, it is undesirable. As ice in some form or other is usually importuned for by the patient, it is, perhaps, well at once to resort to this method of its exhibition, and the bag will be most wisely placed upon the præcordium. As to its local application over the bleeding point, even if we could accurately localise this, I doubt the advisability, owing to our want of knowledge of the effect of cold on the pulmonary vasomotor nerves, and of the depth to which the cold of an ice-bag can penetrate. Experimentally, but not yet to my mind clinically, it seems to have been shown that the cutaneous application of ice to the chest has produced local anæmia of the subjacent lung.

I would conclude this paper with the exhortation, "Above all things let the thought of morphine be kept ever in mind." As a chain's strength is that of its weakest link, so is the hæmoptoic force of a circulation that of its strongest pulse. One strong beat may thrust away the plug which many feeble predecessors have allowed to form. A vascular serenity is, therefore, an absolute essential in the treatment of hæmoptysis.—*British Medical Journal*, *April* 21, 1894, *p.* 850.

DISEASES OF THE ORGANS OF DIGESTION.

24.—ON THE DIAGNOSIS OF DISTENDED GALL-BLADDER.

By W. Osler, M.D., F.R.C.P.

In the diagnosis of the tumour caused by dilatation of the gall-bladder, the patient should be recumbent, in a perfectly easy posture, with the abdominal walls as much relaxed as possible. Sometimes a prominent tumour is at once visible, descending with inspiration, or there may be a swelling of considerable size in the right half of the abdomen. More frequently, however, inspection is negative, and the facts must be elicited by careful palpation. The facility with which this procedure can be carried out depends upon the degree of rigidity of the abdominal walls, and a thorough examination may be impossible without anæsthetising the patient. Bimanual palpation is the most satisfactory. Sitting by the side of the patient, the left hand beneath the lower ribs, with the right upon the abdomen, a little below the costal margin in the nipple line, gentle palpation with the pads of the fingers is first made during quiet breathing. The patient is then asked to draw a deep breath, and gentle but firm palpation is repeated, the fingers of the right hand following the receding abdominal walls. The anterior edge of a normal liver can in this way be readily felt, and any marked projection of the gall-bladder detected. On the whole, I think it more satisfactory to use the fingers of the right hand for palpation, but it is possible also to use the thumb of the left hand in the method described by Glénard, his *procédé du pouce*. The left hand grasps the right flank with the fingers behind. With the thumb, which is then free, the edge and surface of the anterior part of the right lobe of the liver can be readily felt, as the organ descends during inspiration. The facility with which this procedure can be carried out depends somewhat upon the length and mobility of the thumb.

The position varies with the size of the tumour and the existence of enlargement of the liver. Moderately distended in a liver of normal size, the gall-bladder may be felt projecting beneath the costal margin opposite the end of the tenth costal cartilage. It is superficial, appearing to lie immediately beneath the abdominal wall. The long axis may be parallel with the nipple line. More frequently, however, the direction is somewhat to the left. The tumour is usually to the right of the parasternal line, but it may be directly in or even to the right

of the nipple line, while in other instances it may be chiefly to the left of the parasternal line. The fingers may be placed directly beneath it, and the sensation given is that of a smooth, rounded body, larger at the lower end than above—that is, pear-shaped. While the outlines below are usually readily defined, toward the liver they are obscure, and no definite edge can be felt above the tumour. This is a point of importance in the differentiation of floating kidney. Sometimes the tumour appears to be turned forward on its axis, like a gourd, and a groove may be felt separating it from the liver. As a rule, palpation is not accompanied with much pain. The sensation conveyed to the finger is usually that of a tense, firm, elastic body. This is not always the case, for an enlarged gall-bladder may be extremely flabby and soft, and is then difficult to feel. On the other hand, it is to be remembered that in long-standing cases of cholelithiasis there may be complete calcification of the walls of the gall-bladder, forming a tumour of stony consistence. The size of the tumour projecting beyond the liver margin is some measure of the degree of distension of the gall-bladder, particularly when the dilatation is due to plugging of the cystic duct. When the common duct is obstructed there may be great dilatation of the gall-bladder and ducts with only a slight tumour projecting beyond the costal margin. I have reported a case, operated upon by the late Dr. Agnew, in which the fundus of the gall-bladder projected only 2·5 centimetres, but on lifting up the liver it was seen that the distension was chiefly beneath the margin, and eighteen ounces of bile were removed by aspiration. While these statements hold for modern dilatation of the gall-bladder, there are instances on record in which the tumour is exceptionally large, extending to the pelvis, occupying the entire right side, or even filling the abdominal cavity like a large ovarian cyst.

In a doubtful case of tumour projecting below the right costal border aspiration may be practised, using a fine needle and exercising caution that the bowel does not lie between the tumour and the abdominal wall. The contents of a dilated gall-bladder are either clear mucus, which is most common in prolonged obstruction of the cystic duct; bile, when the common duct is blocked, though when occluded for a prolonged period the entire bile passages, including the gall-bladder, may be filled with a thin mucus. Pus is met with frequently, usually general symptoms indicating that suppuration has occurred; and, lastly, blood may be present in cases of neoplasm of the gall-bladder. In acute phlegmonous inflammation due to calculus, the gall-bladder may contain a dirty, brownish-red, ill-smelling fluid.

From growths at the pylorus and in the colon, which may occupy a similar position, the gall-bladder tumour is, as a rule,

readily distinguished, both by the differences in the symptoms, and particularly by the systematic local examination, using also the inflation of the stomach and intestine. To two conditions I would, however, call attention. In stout persons, and when the adominal walls are unusually tense, movable kidney on the right side may be mistaken for an enlarged gall-bladder. Only, however, when the kidney is very movable does it descend so low and so far to the left that this mistake could occur. It does sometimes, however, emerge beneath the liver margin as a rounded tumour in a most deceptive manner. With the patient recumbent and the kidney in its natural position, no tumour is evident; but on change of position (turning to the left) or on deep inspiration it then appears. A movable kidney on the deepest inspiration, with the fingers placed above it, can be held down and prevented from returning during the expiratory movement. A gall-bladder tumour rises and falls with the respiratory movements, and can not be held down during expiration. Again, above the rounded surface of the kidney, the sharp margin of the liver may be felt with great distinctness, whereas in gall-bladder tumour the upper limit is not to be defined, and there is no sharp edge above it.

An interesting anatomical condition of the liver has been referred to—particularly by Professor Riedel—namely, a tongue-shaped process of the anterior margin. A knowledge of its existence may save error. He believes that this extension is seen particularly in women whose livers have suffered from the effects of lacing, but it is directly caused by traction, the gradually distending gall-bladder elongating the anterior margin. In twelve of the cases upon which Riedel operated this tongue-like process was present; in nine instances the gall-bladder was palpable either at the median or under margin of the process. It is not always, however, associated with dilated gall-bladder, and I have seen very curious elongations of the anterior margin of the right lobe in perfectly normal livers, and in several instances of the posterior margin of the left lobe. It is important to recognise the existence of this process, as it may form a very definite mass in the right flank.

While the presence of a well defined tumour is of the utmost importance in the diagnosis of gall-bladder disease, there are cases in which we have to be content with less positive evidence. A special value of Professor Riedel's work in relation to the diagnosis of gallstones lies in a somewhat startling revision of accepted data regarding the cardinal symptoms of this disease. Thus, ten of the fifty cases upon which he operated had never had colic; only fourteen presented a definite tumour, and a majority had never had jaundice.—*New York Medical Journal, April* 21, 1894, *p.* 483.

25.—ON BENZONAPHTHOL AND BISMUTH SALICYLATE IN SUMMER DIARRHŒA.

By Solomon Solis-Cohen, M.D., Philadelphia.

The term summer diarrhœa is here used to include the various forms of gastro-intestinal disturbance occurring during warm weather, and especially characterised by frequent, loose, or even fluid discharges from the bowel; sometimes attended with pain; sometimes attended with fever; sometimes associated with nausea and vomiting.

While the pathology and etiology of these various forms of disturbance of the alimentary canal vary in particulars, the general factors are the same; an indiscretion in diet, special or general, remembered or forgotten; over-heating or over-exertion in the heat; irritation or inflammation of the gastro-intestinal mucous membrane in whole or in part; bacterial activity; intoxication by absorption of noxæ from the intestines. After the alimentary canal has been cleansed of irritating materials by the most available means, which may be, according to circumstances, lavage of the stomach, irrigation of the bowel, or the administration of a purge, usually calomel, or a mixture of castor oil and spiced syrup of rhubarb (equal parts); and after the diet has been duly regulated, I have observed very satisfactory results from the administration of the following combination: Benzonaphthol, bismuth salicylate, Dover's powder, of each five grains, in capsule, cachet, or powder. To an adult, one capsule is given every three hours, or as necessary. It is rarely needful to exceed four doses in the twenty-four hours. To children, the same preparation may be given in reduced dosage; thus to a child of 2 years I have given: Benzonaphthol 2 grains, bismuth salicylate, 2 grains, Dover's powder, $\frac{1}{2}$ grain.

In the mildest cases benzonaphthol alone has proved efficient, and in many cases the opium is unnecessary, but, as a rule, the combination of the three ingredients in the proportions stated is more promptly efficacious, if present experience can be relied upon, than any other routine treatment I have used. This is the second season during which I have employed it.

A word may be added as to diet. It is best, under the conditions stated, to make a complete change in the food, whether of child or of adult. If a child is taking milk in any form—sterilised, boiled, predigested, or plain—all milk should for the time being be cut off. It will not harm a child to go without food for a day or two, but as parents cannot readily be brought to see this, it is best to give some substitute. Barley-water, and (home-made) beef-juice are the most available. They may be given alternately in small quantities—from two

to four ounces of barley-water; from one to four drams of beef-juice, freshly prepared, every third or fourth hour. If a child has been sick for some time and is much run down, alcohol (from ten to twenty drops of brandy or whiskey) may be added, or given with water between food-times. Smaller quantities of beef-juice, given more frequently, may sometimes be called for by the special conditions of a particular case. If a child is taking various kinds of food, but not much milk, boiled milk with pancreatic powder may be given, as with adults. As a rule, however, it is advisable to avoid milk until the alimentary canal is rendered aseptic, for milk is quite liable to undergo deleterious change after being swallowed, as well as before—a point that is frequently overlooked.

In the case of adults it is usually safe to give boiled milk; in some instances adding sufficient pancreatin and sodium bicarbonate to accomplish artificial digestion in the stomach. I usually prescribe two and a half grains of pancreatin and seven and a half grains of sodium bicarbonate (*i.e.*, one dram and three drams respectively, divided into twenty-four powders, in waxed papers), to be dissolved in an ounce of cold water, and the solution added to a teacupful of warm (previously boiled) milk. This is taken every third hour. When the patient refuses milk, or it is for other reason objectionable, beef-juice, barley-water, tea, coffee, sherry and water, whiskey and water, claret and water, and the like may be given, in small quantities. In most cases the whole question of alimentation is a negative rather than a positive one—to avoid food that will ferment or decompose, or otherwise give rise to irritating products or toxins; for recovery is usually so prompt that the problem of maintaining nutrition does not arise. It is usually best to give water freely—aerated water being preferable.—*Medical News, July* 28, 1894, *p.* 97.

26.—ON THE TREATMENT OF TAPEWORM.

By Leslie Ogilvie, M.B., M.R.C.P.,
Physician to Paddington-Green Children's Hospital.

Although, in all probability, many physicians repeatedly treat "tapeworm" successfully, it is remarkable that so many patients suffering from this parasite have been treated without success several times. The first six occasions on which I had opportunities of treating this malady I failed to procure the head of the worm, and the proglottides usually appeared again

in the evacuations in about three months, showing that the head had not been dislodged, and probably not even detached from its hold on the mucous membrane. In two instances the head must have escaped detection, as the segments did not reappear, but a period of about four months had to elapse before a cure could be pronounced, this being the time sometimes necessary for the development of the mature worm and the passing of the ripe proglottides. During the last seven years I have been successful in procuring the head or proving a cure in 13 consecutive cases, 10 of which had been previously treated. In a fourteenth case, that of a child of four years, the head was not found, and fresh segments only again appeared after an interval of rather over four months. This lapse of time is longer than is considered usual by most authorities, and it shows the importance of waiting for that time before giving a certain opinion as regards the result of treatment. This case had been previously treated by me, but nine months had elapsed before segments were discovered a second time.

I regard it as a case of the introduction of the scolex of another tapeworm six months after the first worm was expelled. In the article on the Entozoa in the new edition of *Quain's Dictionary of Medicine*, as in most text-books, and even in the special treatises of Dr. Spencer Cobbold, the question of the treatment of tapeworm is dismissed in a few words with hardly more than the names of the drugs which have been recommended by different authorities. Mr. Bland Sutton, who is the contributor of the article in *Quain's Dictionary*, gives only the following recommendations regarding treatment by the liquid extract of male fern : "The patient, if adult, should take a dose of castor oil at night, a drachm of extract early next morning on an empty stomach, to be followed in three hours by a small dose of castor oil." I venture to state that this treatment would be of no avail in the majority of cases, whether adult or child. It is not a question of the particular drug used as the vermifuge, but of the method of using it. I have usually found that the cases of failure had been treated in the way described in the article quoted above, and my own experience of this method of using male fern was most discouraging, as I did not find the head, although several yards of the worm were passed.

Some of the cases had been previously subjected to similar treatment, with this addition, that the drachm dose of extract was repeated every morning or every other morning for about a week or even longer. These patients stated that they suffered greatly from nausea, giddiness and faintness, and other toxic effects during the treatment. Not only is such treatment dangerous, but I believe it is perfectly useless. After the first

purgative and the first dose of male fern the second dose of castor oil would probably dislodge many feet of the worm by breaking it off near the neck before the parasite was really poisoned, and would leave behind the tiny head and neck still attached to the mucous membrane. The subsequent doses of the vermifuge would be unlikely to act upon this, there being little or no absorbent surface of worm. It is necessary to wait till the proglottides are again passed before dosing with the extract of male fern, as then the poison takes effect on the large surface of the fully-developed worm. I have found that a single dose of one drachm of the liquid extract of male fern is not enough, and that a second dose should be given, not next morning, however, but an hour after the first dose, and followed in two hours by a large dose of castor oil. I believe also that castor oil is not the proper purgative to give the night before, Many people who suffer from tapeworm pass large quantities of mucus in their stools, and as in all probability the worm is to a considerable extent covered by this it is important to remove it so that the poison may reach the worm. Sulphate of magnesia with tincture of jalap is better for this purpose than castor oil. Moreover this purgative draught should be given not only the night before but in the early morning, if the first dose has not operated, and before administering the first dose of the vermifuge. In some instances, when much mucus was present in the motions, I have given Carlsbad salts or other saline aperient for several mornings before the active treatment was begun. Two or three doses a day of some alkaline medicine for a week are also of use. I have usually given tincture of jalap with the dose of castor oil two hours after the last dose of the vermifuge even if the worm has passed, as it is well to remove the poison from the bowel after it has done its work on the worm. I have seen no ill effects from this treatment, even in children. I give, of course, smaller doses of the purgatives to children, and usually only a drachm and a half of the extract of male fern divided into two doses. It may be asked why a drachm and a half are not enough for adults also, as it is unreasonable to expect the tapeworm of a child to be poisoned by a less dose than that infesting an adult, but I think it likely that the suckers and hooklets of the head are not so firmly attached to the more delicate mucous membrane of the child. I must confess, however, that my results in children are not quite so good as in adults. With the larger doses in adults the worm is usually expelled with the head still attached to several feet of the segments, while in children the segments seem broken off more near the neck, and the head, therefore, is more difficult to find. I may mention that when the head remains attached to several

yards of the segments the vermiform movements are more active, and remain so for some time after the worm is expelled. This was especially noticeable in a case I treated last January, in which a man 36 years of age passed an entire worm twenty-four feet in length with the head still attached to the upper three or four yards. He had acted as host to this parasite for about thirteen years, and had been previously treated by others on several occasions.

In connection with the length of the adult tapeworm I observe that in the article in *Quain's Dictionary* the length of the fully-developed tænia solium is stated as from two to three feet, that of tænia mediocanellata as four feet, and that of bothriocephalus latus as from five to eight feet. This is surely an error, as these figures multiplied by five would nearly represent the lengths as given by most authorities. Ten to fifteen feet is no uncommon length for tænia solium and twenty feet for tænia mediocanellata, the two tapeworms which I have had opportunities of examining.

Of no little importance is the preparation of the patient as regards diet before the treatment. He should eat less than usual for a few days and have a milk diet during the day on which the first draught is to be taken at bedtime. He may be allowed milk puddings, porridge and milk, egg flip, and a little stimulant. The physician should pay a visit soon after the second dose of male fern has been taken, not only to observe the patient, but to inspect all the motions, each one of which should be passed into a separate utensil. In searching for the head it is convenient and less unpleasant to use freely as a disinfectant the liquor potassii permanganatis diluted with water. By careful washing with this the fragments of worm are separated from fæces and the search facilitated.

To sum up then, prepare the patient by dieting, give purgatives suitable for removing excess of mucus at bedtime, and if necessary at seven o'clock next morning; let a dose of the vermifuge be taken at 8 a.m. and another at 9 a.m., wash away the remains of this from the bowel, even if the worm has passed, by castor oil at 11 a.m., and look carefully for the head of the parasite so as to be able to give a certain opinion as to the result of the treatment.—*The Lancet, August* 4, 1894, *p.* 255.

DISEASES OF THE URINARY ORGANS.

27.—ON THE FREQUENCY OF RENAL ALBUMINURIA APART FROM BRIGHT'S DISEASE, FEVER, OR OBVIOUS CAUSE OF RENAL IRRITATION.

By F. C. Shattuck, M.D., Boston, Mass.

For five or six years now I have been more and more particular to have a thorough examination of the urines of patients seeking my advice made by competent men, quite irrespective of the nature of the complaint which brought the patient. The frequency with which albumin and casts, chiefly hyaline and finely granular of small diameter, was reported in those at or beyond middle life entirely apart from any other evidence of renal mischief, attracted my attention. This led to the preservation of the reports of those of fifty years of age or more, and more recently also of the younger patients. Consequently I deal with larger figures relatively or absolutely at the later ages. I now regret that I did not begin my collection on a more comprehensive basis. All the same, it does not seem probable that the result would be very materially modified. In the decade of twenty to thirty I believe that a larger number of cases would reduce the percentage of those with renal albuminuria, and I think also that larger figures would show the condition to be quite as frequent between eighty and ninety as between seventy and eighty; but I cannot regard these sources of error as serious.

In the collection of these cases I have excluded all those with fever; all in which such well-known renal irritants as bile and sugar were present, no matter how small in amount; and also those in which examination rendered it probable that the mechanical effect of crystalline formation in the kidneys was directly responsible for the albumin and casts.

In the division of cases reported as showing albumin and no casts, no cases are included in which there was sufficient blood or pus, either from the vagina or lower urinary passages, to account for the reaction. In many of these I am convinced that more careful search would have revealed casts. Cases of cardiac and other organic disease are included, but I have tried to omit all those in which passive congestion could account for the findings. Of course, all cases of unquestioned Bright's disease are excluded. In short, the attempt has been made to determine approximately how frequently renal albuminuria and casts are encountered in the urine in the ordinary run of adults who consult a doctor, but present no evidence outside of the urine of

primary or secondary renal disease. Some sixty of the patients were hospital cases, partly medical, partly surgical, suffering from widely varying maladies or injuries. No record has been kept as to the time at which the urines of my cases were voided. The larger number probably were passed on rising in the morning; many were passed at mid-day in my office; some both morning and evening; not a few were mixed specimens of the twenty-four hours.

Age.	No. of Cases.	Albumin and Casts.	Albumin and no Casts.	No Albumin or Casts.
20–30	25	8, or 32%	3, or 12%	14, or 56%
30–40	39	9, or 23%	4, or 10%	26, or 66%
40–50	47	26, or 55%	3, or 6%	18, or 38%
50–60	99	64, or 65%	11, or 11%	24, or 24%
60–70	57	42, or 74%	5, or 9%	10, or 17%
70–80	16	16, or 100%	—	—
80–90	14	11, or 79%	—	3, or 21%

The personal equation can be eliminated from my results for the reason that the examination was made in, roughly speaking, nearly equal proportion by four different observers, and a few by two others, all competent to distinguish mucous from renal casts. The small percentage of cases in which albumin was found without casts shows, I think, that no serious suspicion can attach to my results on the ground that other substances were often mistaken for albumin. In the great majority of cases but a single examination was made, but in a fair number there were two or more.

The table needs little explanation. It shows that the percentage of urines containing albumin and casts rises steadily with each decade from the fourth to the eighth, while those free from albumin and casts are in steadily decreasing percentage, and the proportion of those containing albumin but no casts remains nearly the same throughout. The number of cases in which casts were found without albumin was so small that these have not been classified.

The question remains as to the significance of these results. The pathological meaning is not easy of absolute proof. The class of patients who form the basis of my statistics are slow to die, and office and hospital patients are easily lost sight of. A considerable number of the patients I know to be alive, and apparently as well as when albumin and casts were discovered a number of years ago. In only two have I notes of autopsies. In one patient of eighty-five death was the result mainly of old age, and the kidneys were exceptionally healthy to the naked eye. In another of eighty-six years death was due to sudden

uræmia supervening on prostatic enlargement necessitating repeated catheterization, cystitis, and impacted calculus at the vesical end of the left ureter; the kidneys were cystic and atrophic, especially in the cortices. Albumin and casts were found four years before death, and yet the general health was remarkably good for a person of upwards of eighty. In some of the cases albumin and casts were undoubtedly due to active hyperæmia or to irritation of the kidneys, and was perhaps transitory; but it is my belief that the facts in my table are best explained on the theory that the albumin and casts are the expression of senile renal atrophy, especially as far as the higher decades go.

There is no internal organ in which it lies in our power to detect so unerringly minute and slight changes as in the kidney. The heart, lungs, and blood-vessels as a whole are far less accessible to our examination. Age is not a matter of years, nor do we grow old symmetrically. I see no other reasonable explanation for the progressive increase in the frequency of albumin and casts as age advances. Whether this pathological doctrine be true or not the clinical significance admits, to my mind at least, of no doubtful interpretation. My anxiety is not awakened either for the present or the future by the report that a faint trace of albumin and hyaline and finely granular casts of small diameter are found in the urine of a patient after the age of fifty, provided that the kidneys are doing sufficient work as is shown by the twenty-four hour excretion of solids, and provided that there are no symptoms.

Three years ago I was consulted by two brothers, fifty-two and fifty-five years of age, who had been urgently solicited to take out life insurance policies for one hundred thousand dollars each. But the ardour of the company was cooled when it was found that their urines contained a slight trace of albumin and casts, and their anxieties were awakened. Albumin and casts were constantly found in several examinations during the preceding year; but the men were and remain perfectly well. The urines were rather concentrated. In patients under fifty albumin and casts do not disturb me anything like as much as they did formerly. The important practical point is that they are not necessarily the precursors of serious kidney disease, and that their presence does not inevitably demand very careful regulation of the life and constant medical supervision.

In a certain proportion of cases, how large this proportion may be it will take years to determine, interstitial changes will reach a degree to shorten life, advancing more or less rapidly. It is not in our power at present to distinguish accurately which these cases are. Some help is afforded by the close estimation of solids in the twenty-four hour urine; but in the average

individual the reserve balance of kidney power is sufficient to permit of extensive renal impairment without curtailment of the ordinary daily work. The reserve may be diminished or gone; but if the reserve is not drawn upon too much or at all no apparent stringency is felt. We can grant that renal albuminuria is always pathological. Chronic pharyngitis is also pathological. It may be heresy, but I cannot resist the feeling that we are coming to believe that the clinical significance of the one is not necessarily greater than that of the other. I shall follow up my cases as far as I can and hope to be able in the course of years to throw further light on this important practical question. Life insurance companies are right in refusing risks reported as presenting albumin and casts. Life insurance is more like the French than the English criminal law;—it holds that innocence must be proved beyond reasonable doubt. But I have no doubt that risks are daily accepted by the best companies where an expert examination would detect albumin and casts. Few examiners apply the heat and nitric acid tests in a manner to try their full delicacy, and a microscopical examination is practically not demanded. Even if it were it would not ordinarily be sufficiently careful to be of much value.—*Boston Medical and Surgical Journal, June* 21, 1894, *p.* 613.

28.—ON THE TREATMENT OF URÆMIA.

By W. E. Hughes, M.D., Physician to the Philadelphia Hospital; and

William S. Carter, M.D., Assistant Demonstrator of Pathology, University of Pennsylvania.

[The following is taken from the Boylston Prize Essay (1893), "A Clinical and Experimental Study of Uræmia":]

As uræmia is a poisoned condition of the blood, our efforts should be directed mainly toward the elimination of the poisons. But as their nature is not yet clearly understood, our treatment is still largely empirical, guided and controlled by what little theoretical knowledge we possess.

Convulsions, in addition to the general treatment of uræmia, will sometimes need a treatment of their own. As a rule, a convulsion will end spontaneously, but occasionally it will be unduly prolonged, or one may follow another in rapid succession. Here the inhalation of chloroform, ether, or amyl nitrite will be

advisable. Of these amyl nitrite is most easily given and is quickest in its action, but it possesses the disadvantage of being less reliable. Morphine in full doses may be used with advantage. While until within a short time its use in Bright's disease has been regarded as extremely dangerous, yet now it is clearly recognised that it is attended with comparatively little risk. Its effect must, however, be carefully watched, for we have unquestionably seen bad results from it. Especially where uræmia complicates fevers must the greatest care be used, for these are the cases in which it is most likely to do harm.

In considering the treatment for general uræmic symptoms, we have to guide us some useful hints derived from the symptoms. First, in those cases in which diarrhœa exists, the nervous symptoms are least likely to be pronounced. Second, the perspiration of uræmiacs frequently contains large quantities of urea.

Following out the first suggestion, then, the bowels are to be kept freely open, or even hypercatharsis produced. Vegetable purgatives have yielded us better results than minerals, besides being easier of administration. If calomel be used, it must be remembered that mercurial salivation is sometimes easily produced in Bright's disease.

Perspiration being the other channel for the elimination of urea, and possibly other excrementitious substances, it must be aided by every means at our command. These are the use of pilocarpine internally and the stimulation of the skin by local measures. Pilocarpine must be exhibited with great care, for its use is not unattended with danger. But recently we have seen a case where pulmonary œdema followed its use, and where a fatal termination was averted only by the most energetic measures. So that free sweating is most safely brought about by external heat, applied either by a hot-air bath or a hot pack. Of the two the hot pack has seemed to us rather preferable, producing less discomfort and exhaustion, and being surer in its effect. A number of times we have noted cases in which free perspiration was brought about by a hot pack after a hot-air bath had failed. Outside of hospital practice the hot pack is certainly the more easy of application. Pilocarpine, in small doses, is often a most valuable adjuvant to either the hot-air bath or hot pack.

If there be pyrexia, heat should be most carefully applied, and the temperature constantly watched. If there be any rise such an attempt to produce perspiration must be abandoned. We have seen a case of moderate pyrexia where, owing to a misunderstanding, the patient was left in a hot-air bath for

two hours. At the end of that time no perspiration had been induced, but the temperature had risen considerably. After removal from the bath the temperature continued to rise in spite of all efforts to the contrary, and death ensued when it reached 107·9° F.

As the poison is contained in serous effusions as well as in the blood, and as resorption of these effusions may throw enough of the poison into the blood to cause uræmia, it is necessary to withdraw effusions whenever met with as early as possible. No condition of the patient will contra-indicate tapping. It must be remembered that the symptoms of uræmia are manifold, and that not too much attention must be paid to them from any other point of view than that of uræmia.

Free venesection will abstract directly some of the poison, and, as a treatment, cannot be too highly recommended. Applicable to any form of uræmia, its good effect is most forcibly manifested in the grave cases. The existence of marked dyspnœa is its most urgent indication, and next the presence of prominent cerebral symptoms. It seems, from our experience, that it may abort a threatened attack of uræmia. A pronouncedly weak pulse will in no wise forbid its employment, for we have repeatedly seen the pulse strengthen while the blood was flowing. The quantity to be drawn will depend upon the exigencies of the case and the effect produced, being, as a rule, not less than a pint, or even a quart or more.

Bloodletting may be beneficially supplemented by transfusion of a normal saline solution. Especially is this valuable where the loss of blood threatens to weaken the heart too much. The saline solution is also diuretic, and may possibly be a direct antidote to the poison. The transfusion may be done intravenously in exceptional cases when time is of importance ; but this may entail some danger unless most carefully performed. Practised subcutaneously, it will be found that absorption is marvellously rapid. We wish to urge strongly this transfusion, for in our hands it has proven of the greatest good. In a case of pulmonary œdema, where its use would be theoretically contra-indicated, it was followed by a most prompt relief of the symptoms, which bloodletting alone failed to abate.

Diuretics are practically of no value. While the cessation of uræmia is attended by a re-establishment of renal secretion, this is a consequence rather than a cause of the cessation, and possibly the attempt to produce artificial diuresis may entail the danger of an additional irritation of an already over-loaded kidney. — *The American Journal of the Medical Sciences, September*, 1894, *p.* 281.

29.—THE TREATMENT OF NOCTURNAL ENURESIS.

By Dr. Donald Mac Alister, Linacre Lecturer of Physic, Cambridge.

Patients suffering from this troublesome affection, which has proved rebellious to the ordinary methods of treatment, come not infrequently under the notice of the physician at the age of puberty. During childhood the complaint has been tolerated, and simple means of relief, disciplinary and other, have alone been tried. A little perfunctory medication, or it may be such surgical treatment as circumcision or "cold sounding," is all that has been attempted, and yet the enuresis persists. As the little patient advances in age the disability becomes more urgent; and when the time comes for sending him or her to a boarding-school or away from home, the parents grow increasingly anxious to have the habit broken.

I am accustomed in such cases, having first ascertained that no condition requiring surgical interference exists, to use atropine in doses gradually increased to the full limit of tolerance, and in no instance, out of some twenty cases, have I failed to bring about a cure. The following history will illustrate the method adopted. A youth of 14 had passed the examination for admission to a large public school, which he was to join in three months. From early childhood he had been accustomed to "wet the bed" twice or thrice a week. He had been treated from time to time by several practitioners, with ergot, tincture of belladonna in 10-minim doses, Parish's syrup, bromides, cauterisation of the urethra with solution of nitrate of silver, blistering of the perinæum, and ultimately circumcision. Each new treatment checked the enuresis for a time, but soon it recurred; and when I first saw him it was as troublesome as ever. The house-master had informed the parents that he could not receive a boarder so affected, and they were in despair lest his infirmity should prevent his admission to the school, and so spoil his career. They were eager to try anything in reason for his relief, and consequently carried out the directions given with praiseworthy care. The prescription ran thus:—℞ Liquoris atropinæ sulphatis ʒiss, liquoris strychninæ hydrochloratis ℥xlv, syrupi aurantii ad ℥j. Sig.—Five drops of the syrup to be taken in a tablespoonful of water at 9 p.m.; to be increased as directed.

The directions were—that no drink should be taken after 6 p.m., that the drops should be taken at 9, that the boy should go to bed, after emptying the bladder, at 10, that he should be waked to pass water at 12 when the parents retired, and

again at 6 a.m., when the servants rose. Five drops of the syrup were to be taken nightly for three nights, 10 drops for the next three, 15 for the next three, and so on until in the fourth week 30 drops were taken. During this time no "mishap" occurred; there was considerable dilatation of the pupils, and some dryness of the tongue and throat, but no other untoward symptom. The dose was continued at 30 drops for a week, when enuresis again took place. The dose was again increased every three nights by 5 drops at a time until 50 drops (representing about $\frac{1}{10}$ grain of sulphate of atropine) were being taken nightly. Now accommodation was so far affected that the boy could not see to write, though he was perfectly well in other respects. At this point he had to enter for a two days' written examination, I instilled a solution of salicylate of eserine into the eyes, without stopping the atropine. This enabled him to see sufficiently well to take the examination and to pass with credit. As he and his parents had from previous experience been impressed with the notion that the third week of treatment was a critical one, and that at the end of six weeks a second relapse was to be feared, I directed them to continue increasing the dose up to 60 drops, and to continue this dose for a week. No "mishap" however occurred, and the dose was then decreased by 10 drops every three nights, until after nine weeks of treatment it was discontinued. The enuresis never returned, and I was able to certify the patient as cured. Nothing afterwards happened to invalidate my assurance; the youth afterwards passed into one of the services, and is now in an excellent position.

In other cases I have used gradually increasing doses of the tincture of belladonna; but the uncertain strength of this preparation, and the large quantity that has to be taken to obtain its full physiological effect, have caused me to fall back upon sulphate of atropine as more eligible in every respect. In one patient, a girl of 17, I pushed the dose up to 25 minims ($\frac{1}{4}$ grain) of the solution nightly, with ultimate success. In no instance have the secondary effects been at all alarming, or indeed more than slightly inconvenient. The patients themselves are usually so keenly anxious to be relieved of their infirmity that the inconveniences are cheerfully borne, when it is explained that they will pass off entirely when the medicine is stopped. Cerebral or cardiac disturbances have not been observed.

The secret of success in obstinate cases lies in courageous overdosing. If ordinary means have failed, atropine will not succeed unless it is pushed to the utmost. The well-known tolerance of the drug by young patients should give the physician confidence in putting the subjects of enuresis under

its full influence. The addition of strychnine to the mixture probably diminishes the depressant effect of large doses of atropine, and increases the sensitiveness of the vesical centres to reflexes from the bladder walls. Some of my patients have said that, whereas they had been accustomed to wake only to find that the bladder had emptied itself spontaneously, they now were able to get up in time to pass water.—*The Practitioner*, *May*, 1894, *p.* 331.

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Surgery.

GENERAL SURGERY AND THERAPEUTICS.

30.—ON THE FLAP METHOD OF OPERATING.

By John Chiene, F.R.C.S., Edin., Professor of Surgery in Edinburgh University.

When Victor Horsley, in the *British Medical Journal* of October 9, 1886, recommended the flap method of trephining, he revolutionised, in my opinion, intracranial operations. He prevented hernia cerebri; he gave us a means of safely establishing a safety valve to relieve intracranial pressure; he diminished greatly the risks of intracranial sepsis. Many patients are now alive in consequence of this simple suggestion. In October, 1892, I applied the same principle to general surgery, and have used it systematically ever since. Now before any operation I ask myself this question: Can I apply the flap method? In opening the abdomen, in opening joints, in dividing or lengthening tendons or muscles, in shortening tendons (structures which depend for their integrity on their free mobility and non-adhesion to the skin), in tumours in which the skin is non-adherent—these were amongst the first cases in which I applied the method. Week by week the range of cases is being added to, and the result has been so satisfactory that I desire to bring it under the notice of the profession.

The advantages are that the wound in the deeper parts is at a distance from the skin wound, the skin over the deeper wound is not interfered with, it supports the deeper tissues which have been divided, rapid healing takes place. The risk of infection of the deeper parts from impure skin is reduced to a minimum. The purification of the hands and instruments is comparatively easy; the purification of the deeper layers of skin of the patient is the difficulty in aseptic surgery. Some surgeons go the length of saying that the skin cannot be thoroughly purified. Hence the great value of this method. The flap is composed of skin and subcutaneous tissue. It should as a rule be crescentic, and not horseshoe-shaped. The incision should be made as far as possible from sources of septic infection. The main blood supply should enter the base of the flap. This, however, is of secondary importance to the first essential that the skin incision should be away from sources of septic infection.

One of the first cases on which I operated by this method was in October, 1892, for the removal of a loose internal semilunar cartilage in the knee-joint. Since that time all similar cases have been operated on in the same way. In the radical cure of hernia it is a decided improvement. After the operation for strangulated hernia a truss can be applied at an earlier date. In femoral hernia a flap is turned inwards towards the middle line. In inguinal hernia a flap is turned downwards and inwards, exposing the inguinal canal. In umbilical hernia, if the skin over the hernial protrusion is of sufficient thickness, a flap is turned downwards.

In excision of the knee the apex of the anterior flap is made at a lower level than the anterior tubercle of the tibia. In the elbow a flap can be turned upwards. In the operation for fractured patella and fractured olecranon this method will become the rule. In the removal of tuberculous glands and in subcutaneous tuberculous areas Mr. Stiles has applied the flap method. The value of the flap method in tuberculosis is very great, because the risk of infecting the tuberculous area by septic skin organisms is avoided. Every surgeon knows the evil of mixed infection in these cases.

If a muscle, as the sterno-mastoid in wry-neck or the tendo Achillis in club-foot, is thus exposed, the muscle or tendon afterwards works smoothly under the skin. No adhesions form between the skin and deeper parts.

Recently I excised an acromion with a tumour attached to it by means of a skin flap turned up from the deltoid. I then stitched the loose end of the clavicle to the deep tissues, replacing the flap. In dislocation of the outer end of the clavicle, the difficulty of keeping the bone in position is so great that the surgeon will turn up a flap, unite with buried suture the clavicle to the acromion, and replace the flap.

In the division of a bone to remedy deformity or lameness, in the excision or division of bones in aggravated cases of club-foot, in exploring the gall-bladder, kidney (by anterior incision), and in gastrostomy, the method will be found most valuable. If in supra-pubic cystotomy the surgeon intends to unite the bladder wound after exploring the viscus, he should turn down a flap to expose the recti. In time it may come to be the case that in cases of tumours under muscles the flap will consist of muscular tissue along with the skin.

In stitching the deeper parts buried sutures are used, made of fine silk, catgut, or silver wire. In using silver wire use, as recommended by Kocher, several strands of fine wire rather than thick silver wire; it is much more pliable, and quite as strong.

In stitching the skin horsehair is used. In this connection I may state that I have during the last year been gradually giving up knots to fix the stitches. The thread is simply passed three or four or five times, as in the first part of a common knot. Mr. Johnston, one of my dressers, has worked out the tension which such a method will bear. He finds that if a double horsehair is used, four turns bear a strain of 35 ounces; three turns, 24 ounces; two turns, 12 ounces; one turn, $\frac{3}{4}$ of an ounce.

It will in all probability be found that the larger the loop—the greater the distance between the points of emergence—the more numerous will be the turns. In other words, all the portion of the circle which is exposed will consist of a series of turns. By this stitch the approximation of the edges is more easily attained. If on tightening the edges do not fit closely and accurately, it can easily be loosened and again tightened. Lastly, to keep the flap out of the way, it can be stitched back, it can be grasped with forceps which will keep it back, hanging down by their own weight or leaded. It can be hooked back, fixing the hooks with india-rubber bands to a piece of lead. The simplest way is to stitch it back with a temporary horsehair stitch.

I am of opinion that the flap method is worthy of systematic application to general surgery. If surgeons will give it a trial I think that they will continue its use in suitable cases.

P.S.—After the paper was read I was informed by a distinguished ophthalmologist that the flap method had been used in operations on the eye for many years. It was from Horsley that I got the hint, and to him I give the credit. I am well aware that there is "nothing new under the sun."—*British Medical Journal, October* 6, 1894, *p.* 741.

31.—ON SOME AFFECTIONS OF THE VEINS OF THE UPPER EXTREMITIES.

By W. H. Bennett, F.R.C.S., Surgeon to St. George's Hospital.

During the past eight or ten years I have been consulted by a considerable number of patients suffering distinctly from the effects of either varicosity or dilatation of the veins in the upper limbs. I have selected for discussion the last 60 cases which I have seen of affections of the veins of the upper limbs, because I can speak precisely of them. Of these 60 cases, 18 came to me simply for varicose veins—a condition hardly mentioned in the ordinary text-books as existing in the upper limbs. Not only were the veins large and tortuous, but so

large and inconvenient were they that the patients came to seek relief from the discomfort which the unnatural veins caused. The other cases, which for my present object are the most interesting, were divided in the following way :—Twenty-six followed distinctly upon injury ; in 14 cases the veins increased in size spontaneously, apparently without any injury at all ; and in 2 cases I discovered the abnormal veins accidentally whilst I was examining the patient for some other affection ; these last two cases therefore are not of much account. The most interesting cases are those which followed upon some kind of injury. I have used the terms "varicose" and "dilated" veins as distinct expressions ; it may be well, therefore, before going further, to state why I have done so. A dilated vein is not necessarily varicose—in other words varicosity and dilatation are not synonymous terms. A varicose vein is one which is not only large, it is also tortuous, and may present at intervals well-marked cystic expansions ; its coats are thicker than those of normal veins, but the thickness is not out of proportion to the size of the vessels. An absolutely distinct thing, then, is a varicose vein from a vein which simply becomes dilated from backward blood-pressure or increased tension from any cause. In the eighteen cases of pure varicosity which I have mentioned the condition was very distinct. In one instance varicose veins which had existed the whole of the man's life, at least from his schoolboy days, coursed down the whole length of the right upper limb, from the shoulder to the wrist. He had met with no injury, nor had he suffered any discomfort whatever until a short time before he came to me. Crossing the biceps was a very large tortuous vein which below was joined by some others from the front of the forearm quite as large as my little finger. There was no doubt that this was a case of congenital varicosity. The other instances were not so excessive in degree as that, but still they all presented unmistakable symptoms of real varicosity. In six cases well-marked cysts existed, and in one case the cyst, which had become solid, was only discovered whilst an attempt was being made to remove it, under the impression that it was a fibrous tumour on the inner side of the arm, just above the bend of the elbow. These are cases typical enough of their kind and do not, as a rule, give rise to any trouble—these congenital cases of varicosity—until a certain change occurs in the vessels.

Let me consider for a moment why it is that varicose veins become troublesome—they do not always do so. Why should they give rise to any discomfort at all ? Two patients, perhaps, have had varicose veins to the same extent in some part of the body—say in the lower extremities—all their lives. Of course the veins have grown a little larger as adolescence has come on,

as these things always do, but they have given rise to no trouble whatever. One patient will now go through life, until he may be a very old man, without discomfort or trouble of any sort, even though the veins may be very large. It is a common thing to see people pass through life with veins like this without suffering any trouble at all. The other patient may at some time suddenly begin to suffer trouble. He may get indications of eczema or perhaps ulcers about the lower part of the affected limbs, or some other sequence of symptoms may arise which plainly indicates that he is suffering from one of the many troubles which sometimes follow upon varicose veins. Now, why is it that in one case trouble arises, whilst in the other it does not? (I am now speaking of cases of injury; a vein which is injured will naturally become blocked and give rise to pain, &c., whether varicose or not, supposing the injury is sufficient.) The essential factor in producing trouble in varicose veins is insufficiency of the valves; the moment the valves in a large vein become insufficient discomfort follows. This leads me to another point, which is not always understood. A varicose vein, as I have already said, is, excepting in its size, its tortuosity, and its irregularity, quite like other veins; the extra size involves an extra thickness of the coat, exactly in proportion to the size of the vein. But what is of the greatest importance is the fact that the valves in these varicose veins are originally perfect, and not imperfect. It is not until the valves become imperfect—"insufficient" is the technical term—that any trouble at all arises, and the reason of this is as follows:—The valves in every vein act like buffers to resist sudden or abnormal pressure, in addition to their other functions, with which I am not at present concerned. In any part of the body where the subcutaneous veins terminate by passing through or near muscles which are constantly being called into violent action, whereby great pressure is thrown on these vessels, or which independently of their relation to muscles are placed in circumstances in which sudden tension is liable to be thrown upon them out of proportion to their apparent strength, a specially strong valve or arrangement of valves is placed at the proximal end of the vein, the point at which the greatest pressure is originally felt. The stop-like action of the valves when perfect protects the distal part of the vein and its tributaries from an excess of tension which would otherwise inevitably produce dilatation with its attendant evils. It would, therefore, naturally be expected that veins or portions of veins in which this excessive pressure is first felt would be protected by some special arrangement of valves. Practically this is so; for example, at the termination of the long saphena in the femoral vein two or three pairs of valves are invariably

found, excepting in rare cases where only one very strong and large pair of valves exists. Again, at the bend of the elbow, where the superficial vein or veins join the deep communicating vessel, either one very strong or two or more pairs of valves are found. In the cephalic vein also, at the point where it dips down through the costo-coracoid membrane, a similar arrangement exists. The purpose of the multiple arrangement of valves is clear enough; in the event of the proximal pair giving way from the extreme pressure (being, in fact, "spoilt") the next pair is ready to resist the pressure, and thus, for the time being at least, the vein beyond is saved from the effects of the excessive tension; should the other valves subsequently give way, then dilatation of the whole vein is certain to follow.

At first the vein between the valve which has given way and the valve next lower down only becomes dilated. Soon, however, the column of blood above, acting at a great advantage, causes so much tension of the vein-walls that the valves below give way one after the other, and thus by degrees the whole vessel may become dilated. Although this dilatation undoubtedly affects the proximal portion of the vein first, it often escapes notice because it is so slight, in consequence of the shortness of the column of blood concerned. As the valves throughout the vein become insufficient the unbroken column of blood acts at a greater and greater advantage as it increases in length, the result being that when the whole vein becomes practically valveless the distal portion of the vessel quickly dilates and so produces discomfort. Hence, as a rule, the change in the distal end of the vein is regarded as the beginning of the affection, because it first causes the discomfort which attracts the patient's attention. Dilatation having once started in the distal part of the vessel, rapidly increasing changes in the same direction soon involve it throughout its whole length. The proximal part, in fact, although the first to be affected, is the last to show dilatation in the extreme form. The cause, therefore, of the pain which attacks patients who are about to suffer from the inconvenience of varicose veins is merely commencing dilatation of the vein in consequence of the insufficiency of the valves. In cases of this sort, when the veins are about to become troublesome, the patient begins to describe a sort of pain and discomfort in the veins themselves, as if they were too full. Now no person whose vein valves are perfect feels any discomfort from overfulness under ordinary circumstances, whether the veins are varicose or not. Directly, however, the valves give way this feeling of fulness comes on, and it is very soon followed by dilatation of the vein, with the pain and other indications of coming trouble.

I am going to speak of the class of cases which I said followed upon some obvious injury. The injuries, so far as I could ascertain in the cases I have referred to, or at all events the injury to which the patient originally attributed the discomfort, were the results of lawn tennis, heavy-weight lifting, football, accidental wrenches, and sprains whilst rowing, &c. With two exceptions the injuries were apparently trivial.

The lesion in each was simply what I have described; the exertion, whatever it happened to be when these men originally felt discomfort, threw so much pressure upon certain veins that there is no doubt the valves gave way. The result of this was exactly what I explained just now will happen to a vein, whether varicose or natural, when the pressure of the whole column of blood is thrown upon it without the intervention of the buffer-like action of the valves; these veins began to dilate, and with the dilatation came the characteristic pain. The reason that these patients did not get any relief from the ordinary treatment which is commonly adopted for sprains and injuries of that kind was, of course, that the treatment had been directed altogether to a wrong object. The treatment, in fact, had been directed to the getting rid of the effect of a sprained muscle or a sprained nerve, or something of that sort, whereas the symptoms had nothing to do, when I saw the patients, with muscles or with nerves, but simply depended upon this peculiar sort of dilatation of the veins about the limb. The indication was clear enough, and when the cases were treated properly such relief as could be afforded under the circumstances was given at once. At all events, more relief was given than had ever been obtained before, because the treatment was directed to the right end.

These cases are altogether different from cases of varicosity. The patients were persons whose veins were absolutely healthy to begin with, but in consequence of the great exertions pressure was produced of more intensity than the valves could resist, and so they gave way. They all presented similar conditions, and the indications for treatment were clear enough. It may, however, be worth mentioning that one of the patients consulted me because he had been told that the sound limb was wasting, as it had become so much smaller than that on the opposite side, the difference in size being in reality due to general increase of the affected forearm in consequence of the extensive dilatation of the veins in it. The smaller limb was, in other words, quite natural, whilst the affected side had hypertrophied. I only mention this point to show how easy it is for intelligent persons to be deceived in very simple matters if such an elementary point in diagnosis be omitted as a careful general comparison of the opposite limbs.

Once the cause of the symptoms is recognised the treatment is simple enough and is certain to be followed by good. The result may perhaps be not perfect, but it will afford the patient so much relief that he will in the vast majority of cases be quite content. The object in view is to compensate the veins as far as is possible for the loss of the valves (for having become incompetent they are for practical purposes lost). The most simple plan is, of course, to do as you would do in a similar case in the lower extremity, *i.e.*, supply the patient with a well-fitting and rather tight elastic support. In many cases, even when the dilatation is exaggerated, the relief is so great that nothing more is asked for. Should the relief, however, thus obtainable be inadequate, or the trouble of wearing the appliance be seriously objected to, the only real alternative is operation. In these cases of dilated veins there is no reason for removing considerable lengths of the vessels. It is sufficient to divide the veins between catgut ligatures in several situations. The vessel will thus be cut up into a number of separate segments instead of existing as a long and practically valveless tube ; in fact, the result produced will resemble the condition of things existing in a normal vein with its valves shut. This proceeding, so far as I have seen, entirely removes the symptoms and produces a result which leaves little to be desired. The vein operated upon dwindles to something less than its normal size, and the segments into which no tributary comes or into which only very small tributaries open become unobservable ; that is the most scientific—and I have no doubt the best—treatment in otherwise healthy individuals ; but, as I have said just now, the elastic support is all that is necessary in many cases. The treatment of true varicose veins in the upper limbs is conducted upon the same lines as in the lower extremities. Operations for their removal, however, although less frequently called for, are more radical in effect, since the varicosity is, as a rule, more limited, and can therefore be more completely extirpated than is often possible in the leg or thigh. —*The Lancet, May* 5, 1894, *p.* 1115.

32.—ON DISEASES OF THE ENDS OF THE LONG BONES IN CHILDREN.

By Thomas Pickering Pick, F.R.C.S., Surgeon to St. George's Hospital.

I have adopted the broad and comprehensive title of "Diseases of the Ends of the Long Bones in Children" on account of the ambiguity which has been produced by the many names which

have been given to this affection, some of which are very misleading. Such names as "acute epiphysitis" and "acute epiphysial necrosis," which are frequently given to inflammatory conditions occurring at the ends of the long bones in children, are liable to cause confusion and actual misapprehension as to the seat of the disease in the majority of cases; for in most of those which come under our notice the disease does not—at all events, in the first instance—involve the epiphysis at all, but commences in the growing tissue at the end of the diaphysis, on the surface of the epiphysial cartilage, remote from the joint.

The disease is met with in an acute, subacute, and chronic form.

The acute form is for the most part met with in children under the age of one year. Out of a total number of 45 cases of which I have collected notes only 9 were over twelve months in age, 1 was two years old, and 4 above this age. Of the 36 cases under one year of age, 22 were under six months, and of these 7 were under six weeks of age, the youngest being three weeks old.

As a rule it is met with in weakly infants where the family history is not good, or where the vitality is lowered by hand-feeding; though, at the same time, it must be admitted that cases occasionally occur where the patients are thoroughly strong and healthy, and where the child has been nursed by its mother and brought up under the best hygienic surroundings, and where there is every appearance of perfect vitality. These cases are, however, the exception and not the rule. Dr. Neve states that it may occur after or on account of the exanthematous fevers, especially small-pox, usually during late convalescence, and other writers have stated the same thing.

In a large number of cases there is the history of some injury, and when we consider how slight an injury may produce a serious contusion in a fragile infant we cannot be surprised at this. It is easy to conceive that in many other cases also there may have been some accidental wrench, which was disregarded at the time and perhaps forgotten, especially as the little ones are too young to make any complaint or to have any recollection of the nature of the injury.

One view which is largely held with regard to the causation of this acute affection is that it is owing to causes operating from within, and quite independent of any injury to the part—that is to say, that it is pyæmic in its nature. There can be no question that pyæmia is occasionally set up in infants, either from septic changes at the point of ligature of the umbilical cord or from an open wound in any part of the body.

From a careful consideration of the recorded instances of this disease, as well as observations on those cases of it which have

come under my own notice, I am compelled to argue that there are many features in which this condition presents a wide departure from the ordinary symptoms and course of a pyæmic affection. In the first place, I would point out that a considerable proportion of cases, nearly one-half, progress to a successful termination under appropriate treatment, and I would ask whether this is what one would expect if the disease were a true pyæmia. From an analysis of 41 instances which occurred in infants, and which I have collected from amongst my own cases and those of my colleagues, as well as from published records, I find that 19 recovered and 22 died, being a percentage of about 53·6. Again, the possibilities of repair in those cases which are properly treated is most remarkable, and the rapidity with which this repair takes place is perhaps even more so. Note, for instance, one of the cases recorded by Mr. Smith, where an abscess in the left knee-joint was opened on December 21, and the child died five weeks afterwards. After death the joint was found almost completely ankylosed, the opposed surfaces of the tibia and femur being firmly adherent by organised and vascular lymph. This does not tally with one's ideas of pyæmic affections. Then, again, the disease is entirely confined, in the first instance, to the bones, and though more than one bone may be affected, still no other tissues in the body are, as a rule, involved except from direct continuity. In the majority of cases, however, only one bone is affected. In my 41 cases I find that only one bone was affected in 29 cases. Finally, the affection of the joints—that is to say, the suppurative arthritis which so frequently accompanies this affection—is not pyæmic in its character, but is simply due to the bursting of the abscess which has formed in the bone into the cavity of the joint. These arguments seem to me to be sufficient to induce us to discard the theory that the inflammatory changes taking place in the growing ends of the diaphysis or the ossifying centre of the epiphysis are pyæmic in their origin, though it must be admitted that, once established, it may give rise to pyæmia. To what, then, are we to attribute them? They would seem to me to be much more closely allied to those inflammatory conditions which are known under the names of acute diffuse osteo-myelitis and diffuse periostitis, and which so frequently result in acute necrosis. The morbid changes and the symptoms would all seem to point to this. Diffuse osteo-myelitis and periostitis are undoubtedly infective, and by many are believed to be due to a specific virus. Whether this is so or not, there can be no doubt that these diseases (acute osteo-myelitis and periostitis are caused by pyogenic cocci, which are always to be found in numberless quantities in the inflammatory exudation; and, furthermore, that similar organisms are found in the pus which

results from the inflammation in those cases which we are now considering. This has been abundantly proved by the investigations of Lannelongue, Achard, Koplik, Lockwood, Tubby, and others.

Many points of similarity between the two diseases are to be found. Both diseases attack the young, the feeble, and the ill-nourished, though it must be admitted that the age at which so-called epiphysitis occurs is much earlier than that at which, as a rule, acute diffuse osteo-myelitis and periostitis set in. But this, I think, is to be accounted for by the superabundance of the particular tissue affected at the two periods of life. During the first year after birth the amount of the very vascular growing tissue which is the seat of this disease is very considerable at the ends of the diaphyses, and diminishes after this period, while, on the other hand, the osteogenetic layer beneath the periosteum covering the shaft of the bone, which, as we have seen exactly resembles in structure the tissue at the growing end of the bone, is very considerable for some years after birth—in fact, for as long as the bone is increasing considerably in thickness. Therefore the disease which attacks this tissue is more likely to occur at the growing end of the shaft during very early life, and on the growing surface of the bone at a later period. Again, both diseases in a large number of cases, if not in the majority of them, appear to be the result of some blow or strain—slight, it may be, and not sufficient to excite any apprehension, but still sufficient to cause changes in structure which render the tissue implicated a suitable nidus in which the micro-organism may flourish and multiply. It may be that there is a slight extravasation of blood, or it may be that the degenerative changes set up as the result of the inflammation necessary for repair cause such an alteration in the tissue that it is no longer able to withstand the inroads of the invading organism. Then, again, we have in both diseases the tendency that there is for the inflammation to rapidly terminate in suppuration, and for the pus thus formed to diffuse itself, in the one case, between the periosteum and the bone, and in the medullary tissue over a wide and extensive area, and, in the other case, through the vascular tissue along the ossifying line or through the epiphysis into the joint. And, finally, in both diseases the lesions are often multiple, though always confined in the first instance to the bones, and both diseases may, and frequently do, give rise to pyæmia. It will be convenient to consider the morbid anatomy of these cases in two separate groups—firstly, as occurring in young infants, and, secondly, as occurring in children of more mature growth ; for I think we shall be able to point out certain salient differences, which may have an important bearing on the treatment.

In the acute affection in infants in the majority of cases the suppuration, commencing in the growing end of the diaphysis, extends through the epiphysial cartilage into the epiphysis, which becomes secondarily involved to a greater or less extent, and not infrequently ends in complete destruction of this part of the bone; but in the greater number of cases the abscess extends through the epiphysis to its periphery, and then perforates the articular cartilage—sometimes by an opening not larger than sufficient to admit a fine probe—and the pus finds its way through this perforation into the joint. When the pus finds its way into the joint it distends the capsule, which often becomes rapidly perforated, and the matter finds its way into the peri-articular tissues and forms an abscess external to the joint.

The three bones principally implicated are the lower end of the femur, the upper end of the femur, and the upper end of the humerus. From an analysis of my cases I find that the lower end of the femur was involved in 19 cases, the upper end in 15, and the upper end of the humerus in 11; while the lower end of the humerus and the lower end of the tibia was involved in three, and the upper end of the tibia, the upper end of the fibula, and the lower end of the radius were each affected in only one instance.

With regard to the symptoms in the acute form of the disease as occurring in infants the sequence of events seems to be somewhat as follows. The mother may or may not be cognisant that the infant has had some injury—some sudden jerk or strain to one of its limbs. The first noticeable signs are that the child becomes fretful and listless, and cries out when it is moved or dressed. This should induce the medical man to make a careful examination, and he will then find that it is the movement of one particular limb that elicits the cry of pain, and it will be noticed that the child keeps this limb quiet and never voluntarily moves it. Bearing in mind the portions of bone principally affected in this condition, an examination in these situations will generally detect some slight thickening and enlargement, and increased pain will be produced by pressure in this situation. The movements of the joint in the neighbourhood will be restricted by reflex spasm of the muscles, and the child's general condition will indicate a more or less febrile state. For the most part it lies quietly, but every now and then its face becomes contorted, and it utters sharp cries of pain. The face is pale, and the eyes are surrounded by dark lines. The sleep is disturbed, and the secretions are disordered. Should these symptoms be disregarded or overlooked, the next sign will be somewhat sudden swelling of the joint. The mother or nurse will state that, while bathing or dressing the child, she first noticed the swelling, and will be pretty clear in her statement

that the swelling did not exist there the day before. This swelling indicates that the joint has become involved, and that the pus originating at the end of the diaphysis has found its way into the articulation. The child now becomes manifestly very ill. The temperature rises ; sometimes in the evening it may register 103° F., or even more ; the child becomes sallow and wan, with an anxious expression. It may have convulsions. It is frequently sick and often refuses food, and, unless the surgeon interferes, the case rapidly goes on to a fatal termination.

Death usually appears to occur from exhaustion, or it may be that some internal inflammation, such as pneumonia, is set up, and is the primary cause of death. In a certain percentage of cases pyæmia is set up, and terminates the existence of the child.

In another class of cases the pus may travel into the soft parts quite clear of the joint. When this takes place the earlier symptoms are, of course, the same as in those cases where the pus tracks into the joint, since the disease is in the beginning the same in the two conditions. This is then followed by a swelling which appears somewhat suddenly in the neighbourhood of the joint, but does not present the characteristic appearances that it would do if it were due to effusion into the joint. The swelling increases rapidly, and often attains a large size, but the general symptoms are not, as a rule, quite so acute as in those conditions where the pus finds its way into the articulation.

Free incision, with evacuation of the matter and removal of all the diseased tissue, thorough drainage, and antiseptic precautions constitute the essence of the treatment in this affection, and alone offer us any chance of successfully combating the disease. We have seen how remarkable is the rapidity with which abscesses form in connection with this disease. The rapid recovery and possibilities of repair after thorough evacuation and drainage are no less remarkable. It is true that a very large percentage of infants under one year of age affected with this disease succumb to its effects ; but this is undoubtedly because the affection is so insidious at its commencement that it has already made such advances in these fragile little creatures before it is actually diagnosed that they have not sufficient recuperative power to withstand the disease, and they die of exhaustion. Should a case present itself in an early condition where there is, perchance, the history of an accident, followed by pain on moving the limb, with general malaise on the part of the little patient, and where some deep-seated thickening or swelling can be felt in the neighbourhood of the epiphysial cartilage, with increased pain on pressure, no time should be lost in making an incision down to the bone and exposing it. Should any evidence of pus be present, the bone should be

opened freely with a small gouge and the cavity thoroughly exposed and scraped, all traces of granulation tissue being removed and the parts copiously irrigated with some antiseptic solution. If the disease is localised to the one bone, as it generally is at this early stage, the prognosis is favourable. All febrile symptoms at once subside, the pain on movement disappears, the cavity rapidly closes, and the child recovers without a trace of ankylosis and with all the movements of the joint perfect. As far as my experience goes—and I have had opportunities of judging—in those early cases there is no subsequent shortening of the bone. And this is what one would expect to be the case. At this stage of the disease the epiphysial cartilage has not become involved, and therefore there is no interference with the subsequent growth of the bone. In the majority of cases, however, with which we have to deal, the disease has become further advanced before the case comes under observation, and the joint is involved. But even in this more advanced stage of the disease it is often astonishing how much can be done, and what a favourable result under judicious treatment can be obtained. The joint must be freely opened and thoroughly irrigated with some hot antiseptic fluid. The cavity in the upper end of the shaft of the bone must also be freely exposed and scraped, and any necrosed fragments, if they are present, be removed. The channel of communication by which the pus found its way into the joint should be explored and scraped, and the whole carefully cleansed and irrigated. Efficient drainage must now be provided for, the wound dressed, and the limb immobilised. In favourable cases—that is to say, when no other joints have been attacked, and where there is no internal inflammation, such as pneumonia—the temperature drops, the discharge lessens and after a time ceases, and the patient recovers with a useful limb—sometimes with complete movements of the joint, but more frequently with a more or less complete ankylosis. In many cases also there is subsequently considerable shortening; the epiphysial cartilage having been more or less destroyed, no further growth takes place at that end of the bone.

It will generally be found that so far as the joint is concerned free evacuation of the pus and drainage are all that is necessary so long as the focus of osteo-myelitis is removed from the end of the diaphysis. But occasionally the epiphysis may be found to be more or less completely disorganised, necessitating excision, but this should always be avoided if possible, and partially eroded bone or destroyed cartilage should be treated by gouging so as to avoid any more interference than possible with the epiphysial line. Finally, in many cases when they first come under observation, it is found that several joints are affected; or pneumonia

may be present, or even pyæmia, and then nothing can be done to avert a fatal termination, and the child rapidly succumbs.

So far as we have been speaking of the disease as it occurs in infants—for the most part during the first year of life ; and no doubt the greater number of the most severe and typical instances occur at this early period, when the bones are soft and yielding, and when a very slight strain or injury may set up the mischief ; but that the disease does occur in children of older growth is, I think, indisputable, and these cases, as far as my experience goes, are always the result of injury. In these cases the course which the matter takes is not generally the same as it is in those where the disease occurs in early infancy. In these latter cases, as I have endeavoured to show, the pus generally tracks through the epiphysial cartilage, and, burrowing through the epiphysis, perforates the articular cartilage covering the end of the bone, and so opens into the joint, probably because there is less resistance in this direction than any other. In older children, where the whole, or nearly the whole, of the epiphysis has been converted into bone, there is more resistance in this direction, and, therefore, the matter does not track through the epiphysis into the joint, but finds its way along the under surface of the epiphysial cartilage to the periosteum ; it there bursts through the periosteum, and, in those cases where the epiphysial cartilage is situated within the capsule, invades the joint, while in those cases where the cartilage is outside the capsule it may form an abscess in the tissues external to the joint, and thus the joint trouble does not form a leading feature in such cases. In some instances the pus, having reached the surface of the bone, may not perforate the periosteum, but burrow between it and the bone. In such cases, owing to the direction that the matter takes, the epiphysis speedily becomes separated from the shaft, and lies as a foreign body in a collection of pus.

These cases bear even a still more striking resemblance to those of acute necrosis than those which occur in infants, and would seem to confirm the identity of the two affections. It is often stated that the affection known as acute necrosis frequently begins at the epiphysial line and simultaneously extends down the medullary canal on the inside and between the periosteum and the bone on the outside ; and in those cases where the inflammation starts in the periosteum covering the diaphysis it generally stops at the epiphysial line and extends into the growing tissue between the shaft and epiphysis, separating the one from the other exactly in the same manner as we have seen it do in the cases under consideration. There is, however, one striking point of difference in the two affections, and that is that, whereas in cases of acute necrosis the inflammation, starting in the epiphysial line, has a tendency to

spread widely down the medullary tissue and the periosteum covering the shaft, in these cases the disease does not appear to track into the medullary tissue of the shaft on the one hand, nor far beneath the periosteum on the other; but, having destroyed the whole of the growing tissue between the shaft and the epiphysis, it forms an abscess in the soft parts in the immediate neighbourhood. In these cases, as I have already stated, there is almost always a history of some injury some few days before the advent of the acute symptoms. From this the child may have apparently recovered, and the accident may have been forgotten. The onset of the actual symptoms is usually sudden, the patient, perhaps, being attacked by a rigor, and this is followed by high fever and general constitutional disturbance, with, as a marked symptom, early delirium. Intense pain in the part is complained of, even before any swelling appears, so that the slightest movement of the limb elicits a cry of agony. The diagnosis at this stage of the disease is exceedingly difficult, and the case is often mistaken for one of acute rheumatic or other fever. Even the most careful examination under an anæsthetic may fail to discover any swelling. No doubt in this stage of the disease the inflammation is confined to the vascular tissue in the neighbourhood of the epiphysial cartilage, and it is not until the disease has extended from this to the soft tissues in the neighbourhood that swelling appears. By this time the patient is in such an advanced stage of septicæmia, with high temperature, delirium, dry tongue, jaundiced skin, profuse perspiration, and diarrhœa, that the opportunities for relief by free incision and drainage are well-nigh past. The symptoms, however, are so characteristic that I should not hesitate to at once make an opening in the bone in the neighbourhood of the epiphysial cartilage with a small gouge, and if I found the slightest indication of puriform fluid I should open up the cancellous tissue of the end of the shaft, thoroughly scrape away all the infiltrated and inflamed tissue, and then carefully irrigate and drain the cavity. It is only in this way, I believe, that these cases can be successfully dealt with.—*The Lancet, June* 23, 1894, *p.* 1543.

33.—ON "ACUTE RICKETS."

By Thomas Pickering Pick, F.R.C.S., Surgeon to St. George's Hospital.

There is a class of cases of extreme interest, for our knowledge of which we are mainly indebted to the labours of Drs. Cheadle and Barlow, cases which, formerly described as "acute rickets," were shown by these gentlemen to be cases in which scurvy and

rickets were combined, and in which, to use Dr. Barlow's phraseology, "the scurvy is an essential and the rickets a variable element." I need, of course, scarcely mention that, from a pathological point of view, scurvy is characterised by extravasations of blood and effusion of a semi-organisable fibrinous material in many of the tissues of the body, as the gums, the muscles, and beneath the periosteum of the bones of the extremities and ribs, and that this effusion would appear to be due, not to the degenerated condition of the vessels, but to a chemical alteration in the blood. Now in these cases a similar extravasation and effusion, arising from a similar cause, appears to take place in that particular part of the ends of the long bones in young children, the diseases of which we have been considering in the present course of lectures—that is to say, in the newly-formed bone in close proximity to the ossifying cartilage. From an examination of the bones of children who have died from this disease, and from the recorded post-mortem examinations by Dr. Barlow and my former colleague at the Victoria Hospital, Dr. Colcott Fox, I think there is very little doubt that the most frequent situation for the hemorrhage to take place in these cases of scurvy-rickets in infants is in the highly vascular and growing tissue of the ends of the shafts of the long bones, and that, from this point it travels to the surface of the bone and thence down the periosteum, gradually separating this membrane from the bone. If the bones affected with this disease are examined after death it will be found that the amount of extravasation is greater at this point than elsewhere, so that, as Dr. Fox records in one of his cases, "the upper epiphysis of the right humerus was widely separated by blood-clot." Dr. Barlow, in his account of Mr. T. Smith's case, states that on the tibia the periosteum was separated from the upper and lower third of the shaft by a thin layer of blood. In the middle third there was no blood, and the periosteum was adherent to the bone. This looks as if the extravasation had commenced at the two ends of the bone and was gradually travelling to the centre, especially as in the femur, where the condition was further advanced, the shaft was almost entirely surrounded by a layer of maroon-coloured blood-clot. Again, in the description of another case, Dr. Barlow states that in the right tibia the periosteum was thickened and vascular; there was blood extravasation between it and the shaft for its whole length, but it was greater in amount at the extremities than in the middle. Furthermore, it is through the vascular, imperfectly ossified, and brittle tissue at the extremity of the diaphysis that fracture frequently takes place in these cases; and this is to be accounted for by the fact that, extravasation of blood having taken place here, the nutrition of the bone is interfered with,

and it becomes so fragile that the smallest amount of violence—even a slight movement on the part of the child—is sufficient to produce a solution of continuity of the bone. Again, if we look at the clinical evidence in these cases, it will be found to support this view which I am endeavouring to maintain—namely, that the vascular end of the shaft is the primary, and most frequently the principal, seat of the hemorrhage. If we watch the progress of a case of this sort we shall find that the swelling or enlargement of the bone always begins at the neighbourhood of the epiphysis, and from this point it gradually extends over the rest of the bone in the majority of cases, whilst in some few it is confined entirely to this situation and does not travel beyond it. And the history that the mother or nurse will give of the advent of the disease points in the same direction. They will always assert that the swelling was first noticed in the neighbourhood of some joint. We have, as we have seen, in this situation a highly vascular, barely-developed tissue, and one in which the blood-vessels are exceedingly fragile and prone to rupture, and we have here the situation in which the stress of any slight violence applied to the bone is most likely to be felt, and therefore we should be justified in assuming *a priori* that this is the situation in which hemorrhage would most probably occur. I do not think, therefore, that we shall be far wrong in asserting that the growing tissue at the end of the shafts of the long bones is in most cases the primary, as well as the principal, seat of extravasation of blood in cases of scurvy-rickets in infants and quite young children, for it is evident that these diffuse and copious hemorrhages in infants are very different from the limited subperiosteal hemorrhages producing circumscribed node-like swellings which have been described by Budd and others as occurring in the scurvy of adults. In children of older growth there is no question, I think, that the seat of extravasation is not always the same. Here we may and do find cases where the extravasation takes place under the periosteum over the shaft of the bone, and this may lead to fracture.

I can say nothing of the general symptoms of this disease, for I can add nothing to the very careful and accurate account which has been given by Dr. Barlow, who sums up by saying that "pallor, wasting, immobility, swelling of the limbs, and fretfulness, with or without swelling of the gums, pretty nearly sum up the clinical whole of the disease." I shall confine, therefore, what I have to say to a few words on the condition of the bones which more especially concerns us at the present time. The first thing noticed is that, either suddenly or after a period of failing health, swelling in the neighbourhood of the junction of the epiphysis with the shaft of the bone takes place, and that this swelling gradually extends from the point first affected

along the shaft of the bone until the whole bone becomes encased in a hard cylindrical swelling, which much resembles the swelling one gets in acute necrosis, but is unattended by any of the very acute symptoms which characterise that disease, such as high temperature and delirium, for in these cases there is either no rise in the temperature, or, if there is, it is not considerable in amount, and lasts only a short time. Sometimes, and perhaps most frequently, the swelling of the bone is obscured by œdema of the soft parts, but in these cases the œdema often subsides, and then the thickening around the bone can be appreciated. The skin is tense and shining, and generally of a pale, waxy appearance, though in some cases, and especially when the bone involved is a subcutaneous one, like the tibia, the skin may be redder than natural and convey a sensation of greater heat than the rest of the body to the hand placed upon it. The swelling is exquisitely tender and the child cries out on the slightest attempt to move or touch the affected limbs.

In some cases, probably of a less severe type, the swelling is confined to the neighbourhood of the epiphysial cartilage and does not creep along the bone as in the more severe cases. Under these circumstances the disease is liable to be mistaken for rickets, and, doubtless, it was cases of this sort which first led to the adoption of the name *acute rickets*. The extreme tenderness on handling, which is not present in pure rickets, should at once put the surgeon on his guard, when the history of the case, the fretfulness, the pallor and wasting, and possibly the swelling of the gums, will supply the diagnosis. Later, soft crepitus may be felt in the neighbourhood of the epiphysial line, or, if this is absent, a solution of continuity in the bone may be detected. The child makes no effort to move the limbs, and, in fact, is unable to do so, and they lie helpless in an everted position on the bed, presenting a condition of pseudo-paralysis similar to that which is present in the syphilitic form of the disease. The general treatment of this condition consists in the administration of some fresh, raw vegetable—of which, perhaps, orange juice is the best—with raw meat juice and milk and plenty of fresh air. The local treatment consists in fixation and perfect rest of the affected limbs, for it must be borne in mind that the blood extravasation is the primary lesion, and that the subsequent fracture probably arises from some slight degree of violence acting on the weakened bone, and, therefore, every care should be taken by fixing the swollen limbs to prevent this accident taking place. Even after fracture has occurred fixation is still necessary in order to keep the broken ends in apposition and promote union, which in cases that recover seems to take place readily and rapidly, and, if attention is paid to position, without deformity. The affected limbs

should be bandaged with soft flannelette bandages in such a way as to fix them in a straight and extended position, and the child should be laid on a soft pillow, to which it can be fixed by a broad flannel bandage passed over the trunk, and on which it can be carried about, and even taken into the open air, with as little movement to the child's limbs as possible. Sometimes wet compresses seem to give the child relief, but the objection to them is that they require constantly renewing, and this exposes the infant to constant movement, which is prejudicial to its recovery. The disease is often fatal in spite of treatment, but in the cases which do recover it is astonishing to see the rapidity with which improvement takes place on a plan of treatment based on these lines.—*The Lancet, June* 30, 1894, *p.* 1606.

34.—ON TUBERCULOUS DISEASE OF THE ENDS OF THE LONG BONES IN CHILDREN.

By Thomas Pickering Pick, F.R.C.S., Surgeon to St. George's Hospital.

Tuberculous disease of the growing ends of the long bones is by no means a disease of uncommon occurrence, and is frequently the commencement of disease in the neighbouring articulation. This is especially so in the upper end of the femur, where disease in this situation is frequently the forerunner of disease of the hip-joint. Indeed, it would seem probable that the majority of cases of morbus coxæ originate as a tuberculous disease of the ossifying structures in the neighbourhood of the epiphysial cartilages. I have made an analysis of 64 cases of excision of the hip-joint which have occurred in the practice of my colleagues and myself during the last ten years, and the conclusion I have arrived at is that the disease in 44 cases began in the head or neck of the femur, in 11 cases in the synovial membrane, in 5 cases in the acetabulum, and in 4 cases in the trochanter. In coming to this conclusion I have been guided by the appearances of the parts after removal, selecting that part where the disease was most advanced as the probable origin, and therefore my deductions may in some cases be open to error, but I think they represent very fairly as a whole, the actual state of things. The upper end of the femur is, however, not the only bone which is liable to be the seat of tuberculous disease. The upper end of the ulna, the upper end of the humerus, both extremities of the tibia, and the lower end of the femur are especially liable to be attacked.

The disease may begin in one of two situations; either—and this is by far the more common—it may begin in the ossifying tissue of the diaphysis in contact with the epiphysial cartilage, or again it may begin in the centre of the cartilaginous epiphysis of the bone, and its commencement in this latter situation would appear to be more common in these tuberculous cases than we found it to be in the acute or subacute cases of inflammation of which I have spoken. But in the greater number of cases the disease begins in the growing tissue at the end of the diaphysis of the bone, and the reason of this is not far to seek. The epiphysis of the bone is much less exposed to injury from strains and wrenches than the end of the shaft, and is furthermore protected by the capsular and other ligaments which surround it, so that when any violence is applied to the extremity of the bone it is supported and protected by these structures and so shielded from damage. And moreover in some joints—as, for example, the hip—the head of the bone is further protected by the bony socket in which it is placed, so that it would appear probable that the only form of injury which could constitute the exciting cause of this disease would be direct violence applied to the part. But it is far otherwise with regard to the end of the shaft of the bone. This is the part which has to bear the brunt of those strains on the bones which are so common during the active period of childhood and youth, and it is here that we get those inflammatory conditions set up which result in a decrease of the vital activity of the affected tissues and thus prepare a suitable soil for the development of the tubercle bacillus.

We turn now to the disease as it occurs in the upper end of the diaphysis of the femur, and we find that the earliest evidence of the morbid process appreciable to the naked eye is a patch of slowly advancing rarifying ostitis, and the bone, bounded above by the epiphysial cartilage, becomes slowly converted into a soft mass of granulation tissue, which here and there presents islands of caseation. In most cases all traces of bone structure disappear, the tissue gradually undergoes liquefaction, and pus, thick and curdy, is slowly formed. It not infrequently happens, however, that some part of the bone has not disappeared as rapidly as the rest, and, having been cut off from its nutritive supply, it perishes, and then we have contained in the abscess cavity a small piece of necrosed bone. The inflammation spreads along the soft, growing vascular tissue on the under surface of the cartilaginous layer, destroying the structures, and its products, undergoing caseation, degenerate into pus. The inflammation may spread in one direction only until it reaches the surface of the bone, or it may spread in every direction and thus

completely separate the head from the shaft, so that at the operation of excision the head is found lying loose and detached from the rest of the bone. When the inflammatory process reaches the surface of the neck of the bone one or two things may happen. What most frequently occurs is that, the inflammation having reached the surface—which here, it will be remembered, is within the capsule and is covered by synovial membrane—it spreads to this structure, a general inflammation of it takes place, and, extending to the other tissues of the joint, a typical morbus coxæ is set up. What, however, sometimes happens—especially in cases where the morbid process spreads only in one direction, and the abscess tends to point at one spot at the circumference of the neck—is that a plastic exudation takes place at this spot, glueing together the femoral and capsular layers of the synovial membrane and cutting off this part from the general synovial cavity of the joint. The granulation tissue and subsequent softening may then extend themselves through this and through the capsular ligament, and an abscess form in the structures outside the joint without involving its general cavity.

The evidence by which we arrive at a diagnosis that there is disease of the growing tissue at the end of the shaft of the femur is principally of a negative kind. The only symptoms in an early stage are a slight limp in walking and pain complained of after standing or walking for some time, which soon passes off after a little rest. Conjoined with this it will be found that there is a little tendency to flexion, and hyper-extension causes pain. Most of the classical symptoms of a typical morbus coxæ are absent. There is no abduction or external rotation. There is no fixation of the joint, and it can be flexed, abducted, or adducted without pain. Pain is only complained of in hyper-extension, and this is probably due to the strain thrown on the neck of the bone by the pressure of its head against the tense ileo-femoral ligament. There is no fulness in the groin or obliteration of the fold in this situation ; there is no wasting of the gluteal muscles or alteration in the obliquity of the gluteal fold ; there is no pain in the knee. It will be seen, therefore, that it is by the exclusion of the ordinary signs of morbus coxæ that we arrive at a diagnosis. Later, when abscess has formed in the bone, the symptoms become more marked. The movements of the joints become limited, and passive motion cannot be made to any great extent without pain ; but what movement can be obtained is without any sensation of roughness or creaking in the joint. The child complains of more pain in standing or walking and frequently cries out at night. The muscles of the limb waste. There is usually some elevation of temperature.

In those cases where the two layers of the synovial membrane become adherent and the joint does not become implicated, at a later period, a fluctuating swelling usually appears on the front and to the outer side of the joint, internally to the great trochanter, and when in these cases the abscess is opened a cavity is found in the bone in the neighbourhood of the epiphysial cartilage.

Having arrived at a diagnosis that the case is one of tuberculous disease of the growing tissue at the upper end of the shaft of the femur, the question of treatment has to be considered. In the early stage, before the granulation tissue has begun to caseate and melt down into pus, no operative interference is necessary, and the treatment requisite is the ordinary treatment for all tuberculous bone affections in an early stage. Absolute rest, with attention to hygienic and dietetic principles and the administration of the ordinary remedies for this constitutional condition, sum up the whole of the necessary treatment. But when there is evidence that pus has formed, as denoted by the increased pain, by the rise of temperature, by the crying out at night, and by the fact that passive motion causes pain, and that in spite of treatment carefully carried out for weeks, or even months, the case is apparently worse instead of better, then I think the time for more active measures has arrived. My attention was first drawn to the possibility of reaching a focus of suppuration in the neck of the thigh bone in the neighbourhood of the epiphysial cartilage by a paper by Dr. Thornley Stoker in the *Dublin Journal of Medical Sciences* for May, 1886. His idea appears to have been to open up the cancellous tissue of the neck and thus relieve tension. But, as I have endeavoured to show, I believe that this disease begins as a localised rarifying osteitis of a very limited character in the growing tissue in the neighbourhood of the epiphysial cartilage, and, at the depth one has to tunnel, this small focus of disease is very difficult to find, especially when we remember that the angle which the neck forms with the shaft of the bone varies somewhat at different periods of early life. There is therefore a difficulty in determining the depth that one has to go, and there is difficulty in determining the exact direction in which one has to tunnel. Nay, more, there is a real danger of perforating the compact tissue covering the neck by burrowing in the wrong direction.

From a careful consideration of these cases and the difficulties which appear to attend the operation of tunnelling the trochanter it has appeared to me that there is an easier and simpler method of reaching the seat of the disease than that to which I have just referred. By making what is known as the anterior incision for excision of the hip, and working one's way between

the muscles, the neck of the femur can be easily reached, and by pulling the parts asunder with retractors this portion of bone can be easily explored and, if there is any evidence of disease, can be easily gouged, and thus any abscess in the neighbourhood of the epiphysial cartilage opened up and scraped, and any small sequestrum of necrosed bone, if it exist, be removed. An objection which might be urged to this plan of operating is that possibly the synovial membrane might be injured, but I do not think this need necessarily be so, and, even if it were, with careful irrigation and antiseptic precautions I doubt whether any injury would be done.

In connection with this portion of my subject I should like to draw your attention to two cases which have been recorded in the twenty-first volume of the Clinical Society's Transactions by Mr. Charters Symonds. In both these cases there was the same condition as that of which I have been speaking—namely, a focus of tuberculous inflammation in the neck of the thigh-bone, close to the epiphysial cartilages; but in both the disease had been allowed to progress further before surgical interference was adopted, for in both there was a large abscess occupying the front and outer aspect of the thigh. In these two cases the abscess was opened, the communication with the interior of the bone found and enlarged, and a small sequestrum removed. Recovery took place in both cases—in one with a perfect joint.

A somewhat similar case is recorded by Mr. Battle in the same volume of the Clinical Society's Transactions. In all these cases it is clear that the abscess found its way to the surface without involving the synovial membrane of the joint; but, unfortunately, this is not what usually occurs. What most commonly happens is that the inflammation in the cancellous tissue of the neck of the bone spreads by continuity of structure to the surface and involves the synovial membrane covering this part, and in this way a general tuberculous synovitis is set up and the joint destroyed. It is to endeavour to avert this mischief that I am advocating early operation and thorough clearing out of inflammatory material, though at the same time I am painfully conscious that with our present limited knowledge it is almost impossible to do more than hazard a guess as to the right time when this operation should be performed. On the one hand there is the danger of operating too early while the disease is recoverable from by simpler means, and on the other hand there is the far greater danger of delaying the operation too long, until the synovial membrane has become involved, and irrecoverable damage, at all events as regards the integrity of the joint, set up.

Occasionally, but much more rarely, tuberculous disease attacks the centre of ossification in the head of the bone, and

then we may get an abscess in this situation, which gradually perforates the intervening structures and implicates the joint; or the whole of the ossific matter in the epiphysis may be destroyed, and at a subsequent excision scarcely any trace of the head may be found; or the diseased bone may form a central necrosis without implicating the joint, as in this preparation, where it will be seen that a loose, rounded sequestrum occupies the greater part of the interior of the head of the femur and appears to correspond to the ossific centre for the head of the bone. The sequestrum was surrounded in the recent state by a little pulpy matter.

I must now pass on to allude very briefly to similar conditions in the ends of the shafts of some of the other long bones. Let us in the first place consider the lower end of the shaft of the femur. If tuberculous disease is set up in the ossifying tissue in this situation and results in caseation and the formation of curdy pus, the abscess, if it extends laterally along the upper surface of the epiphysial cartilage, would point externally to the capsular ligament and would not implicate the joint. Under these circumstances it commonly points in the popliteal space; but what appears to be the more usual course of the abscess in these cases is for it to burrow through the epiphysial cartilage, and then tracking onwards through the osseous tissue of the epiphysis to open through the articular cartilage into the cavity of the joint. Several specimens have been placed on the table illustrating this fact. A consideration of these specimens leads me to diverge for an instant in order to point out that many of those cases of abscess in the proximal ends of the long bones which were formerly believed to be the result of ulceration of the cartilages spreading gradually into the tissue of the bone from its articular surface—or "pitting ulceration,"—as it was sometimes called—are really cases of tuberculous disease, commencing in the diaphysis and invading the joint—an ostitis extending *into* and not *from* the joint. I have already alluded to the much greater frequency with which arthritis of the knee-joint begins in the synovial membrane than in the bone, and the reasons why I believe this is so, and I have only to add with regard to tuberculous arthritis, that out of 82 cases of excision of the knee, which I have been able to collect from the practice of my colleagues and my own, in 67 the disease was in all probability synovial in its commencement, and in only 8 did it appear to begin in the lower end of the femur, the remaining 7 cases being instances of the disease beginning in the upper end of the tibia.

Before considering the symptoms of tuberculous disease of the lower end of the shaft of the femur, I propose, for the sake of brevity, to allude to a similar condition in the upper end of

the tibia, inasmuch as the symptoms of the two conditions are very much the same and they both have a tendency to induce general tuberculous arthritis of the knee-joint. The epiphysis of the upper end of the tibia is an oval disc of no great thickness and it is easy therefore to understand that an abscess forming on its under surface would have a tendency to point upwards into the joint, as being the path of less resistance, rather than laterally towards the circumference of the bone. And this is what generally happens in these cases, though sometimes it may and does point laterally. Of this I have had two cases recently under my care. There is no doubt in my mind that the cases of chronic circumscribed abscess which we occasionally meet with in the upper end of the tibia and also in the lower end and which attracted so much attention in former years, were originally cases of tuberculous ostitis of the growing end of the diaphysis in their initial condition, and that the granulation tissue which replaced the bone underwent a process of caseation and liquefied into curdy pus, which became surrounded by a dense layer of semi-organised granulations, forming the so-called pyogenic membrane, which is so commonly seen in these cases. Thus we had formed a circumscribed chronic abscess of bone, of which there are three examples on the table from the museum of St. George's Hospital.

We must now consider the way in which we should endeavour to arrive at a diagnosis as to whether the bone was the starting point of the disease in cases which come under our notice in an early stage. I suppose it will be agreed by all that the apparent enlargement of the condyles of the femur and upper end of the tibia, which one so frequently meets with in tuberculous disease of the knee-joint, is generally merely infiltration of the soft parts, and is not to be relied upon as a diagnostic sign—at all events in the earlier stages of the disease. As in the hip-joint, so in the knee, pain and limping are the earliest signs; pain when the body is in the erect position and when, therefore, the tender spot has to bear the weight of the trunk; but if the patient is lying down and all pressure taken off the joint can be moved freely and without pain, unless, indeed, an attempt be made to hyper-extend the articulation. Pain may be elicited by sharply jarring the sole of the foot, or even by making firm pressure in this situation; pain may also be caused by pressing upon the bone directly over the affected part. After a time the joint will assume a semi-flexed position, in order to relax the ligaments and prevent them, as they would do in the extended position, from pressing the ends of the bone firmly together. It will be found that in these cases there will be no pulpy swelling about the thinner parts of the capsule, as in the synovial form of the disease, and there is no limitation in

the movements of the joint. Later a time may come when the bone becomes enlarged, and should the disease be spreading laterally a spot on the surface of the femur or tibia, remote from the joint, will become tender and swollen, and after a time of a dull red colour, and finally burst. But should the disease track into the joint a general destructive change in the articulation will be set up, and it will become impossible to diagnose by external signs in what structure the disease originated.

With regard to the treatment, I think it must be patent to everyone that if from the symptoms above alluded to the surgeon can satisfy himself that there is a caseating focus in the end of the diaphysis of either of the bones entering into the formation of the knee-joint, his duty is to cut down upon and remove the morbid material as thoroughly as possible. In quite the early stage, before caseation has taken place, absolute rest to the part with attention to hygienic and dietetic measures may be all that is necessary to effect a cure. But after the effused material has undergone caseation and liquefaction the morbid matter must find an exit by some channel, and surely it is better in these cases for the surgeon to at once proceed to get rid of it by a route where it will do comparatively little harm than to run the risk of its burrowing into the joint and destroying the articulation.

Tuberculous disease of the upper end of the shaft of the humerus is by no means common. In fact, we must all be conscious of the much less frequency with which tuberculous disease of the shoulder, whether beginning in the synovial membrane or in the bone, occurs. Out of my collection of cases of excision I find only seven instances of tuberculous disease of the shoulder, and in five of these the disease was believed to have begun in the bone, and in two the synovial membrane. When it begins in the bone it may commence either in the growing tissue of the end of the shaft below the epiphysial cartilage, or in the ossifying tissue of the centres of ossification in the upper end of the bone, of which it will be remembered there are more than one. In the former case the resulting pus may spread laterally, and eventually reach the surface of the bone without involving the capsule, so that the joint may be saved; but in the latter, as the pus extends, it will probably, on reaching the periphery of the epiphysis, involve the joint, and induce a destructive arthritis of the articulation. The symptoms of the condition are the same here as in the other forms alluded to. Pain, especially on making pressure on the head of the bone, or on striking the elbow so as to cause the head to jar against the glenoid cavity of the scapula, and combined with this, perfect freedom of movement of the joint without pain. There may also be slight enlargement of the head of the bone.

With regard to the bones entering into the formation of the elbow-joint, one of them, the upper end of the ulna, is, I think, much more frequently the starting-point of a tuberculous arthritis than is, I believe, generally supposed. It is no uncommon thing in excising the elbow-joint to find a caseating cavity in the olecranon process. And when disease does occur in this situation the joint is almost sure to become speedily involved. The anterior surface of the process is a cartilage-clad surface, and enters into the formation of the joint, so that inflammation commencing in the growing end of the shaft speedily spreads laterally and involves the synovial membrane of the articulation. Of the ends of the other long bones I can say nothing. Time will not permit, and if I did say anything it would be a mere reiteration of what I have already said in regard to those bones to which I have already alluded. I pass on, therefore, to consider the next class of cases, of disease of the growing ends of the shafts of the long bones, to which I desire to draw attention.—*The Lancet*, *June* 30, 1894, *p.* 1601.

35.—ON SEPTIC OSTEITIS IN CHILDHOOD.

By Edmund Owen, F.R.C.S., Surgeon to St. Mary's Hospital.

[The following excerpts are taken from a Post-graduate Lecture :]

Generally, septic inflammation of bone and marrow is acute and fulminating, the child being carried off, perchance, before the diagnosis is actually made. Sometimes it runs its course with comparatively little outward manifestation ; but even in its mildest form the effect produced upon the bone is serious enough to determine death of the affected part. It begins usually in that delicate layer of young osseous tissue at the end of the diaphysis, often spreading like wildfire through the diaphysial bone and marrow.

In these cases of para-epiphysitis, obviously, the bone cannot expand, however acute the inflammation may be ; but the periosteum and its vessels are engorged, and exudation takes place into the tissues around them. Thus there is usually a central thickening to be made out, and it is extremely tender. If the affected bone happen to be near the skin, as the tibia, for instance, the skin becomes red, hot, and œdematous. And if, then, the height of the inflammatory trouble is close against the tuberosities of the tibia, a casual or inexperienced observer would be apt to look upon the case as one of articular rheumatism. Viewing the signs together, it is evident that unless one is on one's guard it is easy to mistake this form of osteo-myelitis for acute articular rheumatism.

Still, the differentiation of acute para-epiphysitis from acute rheumatism is, as a rule, with a little trouble and care, easy enough ; the heat, the swelling, the pain, and the tenderness are close to the articular area, but they do not involve it—at least, not at first. The tenderness is limited to the region of the bone close below the junction cartilage, and at that particular part there is a definite thickening. In articular rheumatism, on the other hand, the swelling, the fulness, and the redness are confined to the area of the synovial membrane, and there is no thickening about the bone. I will admit that when the lower end of the femoral diaphysis is the starting-point of the acute septic inflammation, some confusion may possibly arise from the fact of the subcrural pouch of the synovial membrane overlying and sympathising with the troublous area. But, even then, the true nature of the disease can easily be determined by gently pinching the lower end of the femoral diaphysis from side to side between the finger and thumb, and making a comparison with the opposite femur. Moreover, if the examination be carefully made, it is found that the joint may be flexed and extended without causing distress or alarm.

Such an error in diagnosis is lamentable, and unfortunately it is constantly being made. In some cases the exact diagnosis is, I allow, very hard to reach ; as, for instance, when the upper end of the femoral diaphysis is the part affected. This part of the femur, it will be remembered, is within the capsule of the hip-joint, and it is more than likely that such a para-epiphysitis will be taken for acute rheumatism, or ordinary hip-joint disease. The affected part is so thickly shrouded in gluteal, adductor, and other muscles, that it is difficult to make a critical examination of it. And as the diseased bone is within the capsular ligament the case seems for all the world one of articular disease, and it almost invariably ends as such.

There are two other points in connection with the diagnosis of para-epiphysitis from articular rheumatism to which I must refer. The first of them is with regard to the influence—or rather the want of influence—of salicylic acid upon the case. Of the great value of this derivative of carbolic acid in the treatment of acute rheumatism there are not, I apprehend, two opinions. Am I in error if I say that when a practitioner has diagnosed what he takes to be acute rheumatic synovitis, he, almost as a matter of course, prescribes salicylic acid? He expects a beneficial result as certainly as if he were giving quinine for ague. If, then, the child has taken several doses of the acid, and the temperature and the distress have not abated, he suspects that there is some misunderstanding. And so great is his faith in the drug that he actually begins to doubt his diagnosis. Then, on again looking at the limb, he finds it

flushed over an extensive area, but not specially so about the joint; he examines the tibia, and satisfies himself that it is exquisitely tender, and that a large abscess has formed around it. The case is shipwrecked, so he says that it is a "proper case for a hospital." This is the condition, then, in which many of the children reach the hospital.

The other point to which I wish to refer is that not infrequently two or more limbs are similarly and simultaneously affected. This certainly suggests the constitutional origin of the disease, and is particularly apt to mislead the inexperienced observer. The disease is constitutional; but it is pyæmia, not acute rheumatism.

Recognising the desperate nature of these cases, their treatment must needs be prompt and energetic. With swelling and tenderness at the end of a diaphysis, together with a high temperature and other signs of constitutional disturbance, the surgeon should cut down upon the affected tissue. He should by no means wait for fluctuation, or for other obvious signs of suppuration. As happened in the case of the shoulder of a boy, there may be no pus. Parents seem imbued with the idea that no tender swelling should be "lanced" unless there is ample evidence of "matter" beneath, and I have known members of our own profession share that notion. In a case of this sort it would be difficult to find a line of procedure more fraught with danger. Delay allows the septic inflammation to make irremediable havoc, so that the sooner the area of disease is attacked and cleared out the better. To wait for fluctuation is to give the staphylococci and other micro-organisms the full opportunity of doing their worst. An incision should be made down through the periosteum, and if pus by chance be found beneath it, the abscess cavity should be thoroughly washed and swabbed out with a solution of chloride of zinc (20 grs. to 1 oz.). Further, search should be made for the line of the junction cartilage, and if an opening be found into it, it should be enlarged, and the interior scraped and washed. If no pus be found beneath the periosteum the diaphysis should be trephined in several places, the intervening pieces of bone being cut away, the suppurating marrow scraped out, and the cavity swabbed with the zinc solution. It is impossible to be too thorough in these procedures; sometimes after the operation nothing is left of the diaphysis but the thin shell of its compact tissue. The cavity should then be filled with gauze, and the wounds dressed with wood-wool tissue, the limb being secured upon a splint. Quinine, iron, and morphia are likely to be the only drugs needed.

Lastly, comes the question of complications. Seeing how close the focus of the disease is to the joint, there is little wonder

that the septic process invades and destroys the articulation in a large proportion of the cases. There are two ways in which the pus finds its way into the joint: one is by perforating the epiphysis, and the other by working its course beneath the capsular ligaments and the periosteum. If a case is seen shortly after the explosion in the knee-joint, and the diaphysial affection of the tibia is not too widely spread, excision of the knee-joint, together with a free scraping about the junction cartilage, may possibly prove sufficient. I have had two successful cases of this sort. Excision of the joint, or any other conservative operation, can be resorted to only, let me repeat, when the epiphysial and the diaphysial trouble is limited in extent. Generally there is no alternative to amputation.

In many cases the septic inflammation spreads rapidly through the whole diaphysis, the disease being then termed osteo-myelitis. If a child survive the acute attack, suppuration loosens the diaphysis from the periosteum and from the epiphyses in due course, and, on opening the large abscess, the surgeon may lift out the diaphysis as a solid sequestrum. I regret to say that this condition of affairs has received a separate name, being described in our text-books as a distinct pathological entity, under the heading "Acute Necrosis." There is no such disease. The disease was acute septic osteo-myelitis, and necrosis is the result of it. To look upon the necrosis as a disease by itself is, in my opinion, unscientific; and, what is worse, it draws away the practitioner's attention from the primary and actual trouble. It is almost a matter of surprise that in so many of these terrible cases of diaphysitis the articular ends of the bone completely escape; but we must remember that the vascular supply of the shaft and of the extremities of the developing bone are entirely distinct, the junction cartilages delimiting the vascular areas absolutely and completely.

Exhaustion and hectic fever are other complications of the disease. The latter condition is a variety of ptomaine poisoning, and is met with in those cases in which septic discharges are decomposing in an invaded joint or in some other large cavity. This condition, as well as a contingent albuminoid disease of vessels and viscera, may, however, entirely clear away after amputation has been resorted to. So, also, it is with regard to pyæmia: after amputation, and a clearing out of secondary abscesses, the child may rapidly get well. If, however, the case has been misunderstood from the beginning, so that there has been lamentable delay, and particles of septic thrombi have been carried hither and thither through the child's tissues, even amputation may prove disappointing.—*The Lancet, May* 26, 1894, *p.* 1285.

36.—ON SUBARTICULAR NECROSIS.

By C. T. Dent, F.R.C.S., Assistant Surgeon to St. George's Hospital.

[The following is an excerpt from a clinical lecture :]

Subarticular necrosis is often symmetrical, but I am disposed now to think that this is little more than a coincidence, for it is not unusual for several bones to be affected, and the disease shows a marked preference for certain articular extremities. When these central sequestra are formed remotely from a joint in a long bone they commonly occur in the tibia. The bone is usually enlarged, and through the mouth of the opening found on cutting down the sequestrum is very often seen at once, enclosed in a little case bounded by sclerosed walls. With such cases I am not now particularly concerned. They heal up readily on the removal of the sequestrum and give no further trouble.

When, however, a similar condition occurs near a joint the outlook is very different. If let alone the loose piece of bone exhibits a marked tendency to travel. It is not only that the pus formed around the sequestrum extends rapidly through the epiphysial line in the direction of least resistance and greatest vascularity—that is, towards the joint—but the sequestrum itself progresses in the same direction. Ovoid or spindle-shaped sequestra travel more rapidly than those of spherical shape. In the elbow, especially when starting in the ulna, the sequestra will make their way quickly into the elbow-joint. On the other hand, when forming in the lower end of the humerus they usually tend to escape externally and may sometimes be seen sticking right out through an ulcerated opening in the skin. Sequestra in the head of the femur show less tendency to travel. Sometimes almost the whole of the cancellous tissue of the femur forms into a sequestrum and lies encased in what is little more than a cartilaginous shell, like a ball-and-socket joint. The travelling of the sequestra is effected, I believe, principally by the agency of the vascular granulations, which spring up behind and push the loose piece of bone in the direction of least resistance. If you examine a section of the head of the tibia or the upper end of the ulna, and note how vertical the cancellous laminæ are in their arrangement, the direction taken by these travelling fragments of bone is easy of explanation. Sequestra in the neighbourhood of the knee-joint, at any rate, will travel, and travel far, when they have escaped altogether from the bone. There is a remarkable specimen in the Musée Dupuytren, showing a sequestrum of the lower end of the femur that had escaped from that bone,

travelled across the knee-joint, and became firmly impacted in the tibia, displaced backwards by old disease of the joint (Specimen No. 354 c). Gravitation can have had little to do with this, although this is assigned in the catalogue as the cause. Most probably the condition was brought about solely by the pushing agency of the granulations.

Though in the late stages the treatment may not widely differ from that of the commoner form of tuberculous arthritis, in the early stage it is, or should be wholly dissimilar. If abscesses once form, with or without the production of a sequestrum of any considerable magnitude in the extremity of the bone, close beneath the articular surface, there is very little prospect of recovery by rest alone, and grave danger to the joint results from delay. These tuberculous deposits are prone to extend through the epiphysial line at a very early period ; indeed, they may commence in the epiphysis itself. By the time that symptoms are developed sufficiently to attract notice the disease has usually made considerable progress. I had recently under my care in the hospital a child with slight symptoms of early hip disease, the word "early" signifying merely that the symptoms had only been noticed for a short time. The joint affection was an insignificant feature in her case, for she suffered from tuberculous meningitis, from which affection she died. On examining the hip-joint there was at first sight no evidence of any disease. If there had been any little effusion, it had disappeared or escaped on opening the joint, but on making a vertical section of the upper part of the femur a large caseous deposit in a very early stage was found on both sides of the epiphysial line, invading the head and extending into the neck of the bone.

Early removal of the sequestrum seems to be the natural and obvious line of treatment, and undoubtedly this is the right practice ; but it must not be supposed that all cases will get well even after very early removal of a sequestrum and before extension has taken place into the joint. In these cases, when we remove the sequestrum we take away one local cause of irritation. This is right enough as far as it goes, but we do not remove so easily the caseous or tuberculous material which has led to the formation of that sequestrum, nor if we remove the thick lining membrane, as we should always do, will it invariably suffice. Far more commonly some deposit of tuberculous material is left behind in the cancellous tissue, untouched by the gouge or sharp spoon, and unaffected by the iodoform or chloride of zinc that may have been used to cleanse and disinfect the cavity. This stuff will break down, and the suppuration will go on and extend into the joint, but there, for a time, it will be imprisoned and limited, and it is more easy to

thoroughly eradicate all the material from the interior of the synovial cavity of the knee-joint, complicated though its folds are, than to take away the whole of the infected area of cancellous bone. The best chance of preventing extension into the joint appears to me to lie in free removal of the cancellous bone, even at the risk of actually cutting or gouging into the knee-joint. The symptoms in young patients are often so slight, even when suppuration of this variety occurs in the joint, that undue delay may take place. The moment we are satisfied that there is pus in the knee-joint it should be freely opened, thoroughly washed out, and drained. There is seldom need to keep up the drainage for more than a few days. From the first we use our best endeavours to secure a movable joint in the case of the knee-joint. The principle of rest, and of drainage too, for that matter, is often carried too far in these patients.

The power of recovery in young subjects in these cases, even when very far advanced, is astonishing though this is perhaps more marked in children above one year of age. Many of the cases to which Mr. Thomas Smith directed attention in his well-known paper "On the Acute Arthritis of Infants" were clearly of the nature of those I have been describing. Many ended fatally, and the amount of destruction that ensues in a joint or in the articular ends in children under one year of age is extremely formidable. Although the local condition may be relieved entirely, they are apt to sink and die. In the elbow, excision of the joint often becomes necessary, for the entire lower end of the humerus may become detached and broken up. In the elbow the parts would actually get well, I have no doubt, with very little removal of bone. Still, as ankylosis of the elbow-joint is to be carefully avoided, it is far better to excise sufficiently to ensure a useful limb. These cases mostly do admirably well. In the ankle, again, a joint not very frequently affected, very conservative treatment may be adopted, and the patients frequently recover with a scarcely impaired articulation. So also in the shoulder; but for some reason or other this joint is seldom the seat of disease. In the hip-joint the disease is extremely difficult to detect, and the subject is so important that I prefer rather to concentrate attention on the joints I have mentioned, than to glance hurriedly at a disorder so frequent and so formidable. It may suffice to say now that the removal of a sequestrum from the upper end of the femur above the trochanter, even if diagnosed early, very seldom saves the joint. The results of excision of the hip in subarticular necrosis—notwithstanding the greatly shortened limb that ensues—are very favourable, while excision in tuberculous disease, affecting primarily and principally the soft parts is still not a very satisfactory measure.

The condition for which we are most apt to mistake subarticular necrosis, apart from tuberculous synovitis, is syphilitic epiphysitis. This disease affects the very young. Often the patients are only a few days or weeks old, and when the affection leads to suppurative osteitis the diagnosis in exceptional instances is a matter of great difficulty. If there are other well-marked signs of congenital syphilis the diagnosis is rendered easy. There is one marked symptom in these cases of syphilitic epiphysitis which is rarely absent, and that is pseudo-paresis. In subarticular necrosis there is no paresis ; the patient merely keeps his limb quiet because of the pain. If we bear in mind that the disorders may be mistaken for each other we shall be more readily able to distinguish between the two. In syphilitic epiphysitis the bones are actually swollen, and the joint is comparatively free. In subarticular necrosis we can constantly make out in the early stages that, though there may be a little prominence at one spot, there is no uniform swelling of the bone. There is simple effusion into the joint, but no thickening of the synovial membrane. Both affections attack simultaneously several bones. Syphilitic epiphysitis more frequently leads to suppuration than seems generally to be supposed. It is, of course, of cardinal importance to make at once a correct differential diagnosis in cases where treatment and prognosis are so widely dissimilar.—*The Lancet, April* 16, 1894, *p.* 918.

37.—ON THE TREATMENT OF RICKETY DEFORMITIES BY OSTEOCLASIS.

By R. W. Murray, F.R.C.S., Surgeon Liverpool Infirmary for Children.

I do not propose to deal with rickets as a general disease, but will confine my remarks to the treatment of crooked legs resulting from it ; and I wish it to be clearly understood that my remarks will refer only to the treatment of crooked legs occurring in quite young children, that is to say, in children under five years of age, and to those a few years older who are markedly rickety. In the older children I correct the deformities by doing a simple osteotomy, or by taking a wedge-shaped piece out of the tibia. I will not burden you with a criticism of the numerous explanations that have been advanced as to why in one case the tibiæ curve outwards, in another inwards, and in a third knock-knee results. I will only remind you that the extreme deformities one sometimes sees in very rickety children about four or five years of age, and who have only just

commenced to walk, their legs resembling corkscrews more than anything else, are undoubtedly due to the way in which the child has been accustomed to sit, with the legs tucked away in tailor fashion ; and if you place the child on the floor it will assume this position, and demonstrate to you how it made its legs crooked.

A very large proportion of the children treated as out-patients at the Children's Infirmary are rickety, and up to the year 1888, if a child was brought to be treated for bow legs or knock-knee, the treatment adopted was that which I take it is still more generally practised ; suitable splints were applied projecting well below the feet, so as to prevent the child from walking and to gradually straighten its legs ; the rickets, of course, at the same time being treated generally. The results obtained were on the whole fairly satisfactory, but only fairly satisfactory, for it is a very easy matter to apply splints and tell the mother to keep the child off its feet ; but quite another thing for the mother to carry out these instructions. The children are usually in good health, and strongly resent being kept off their feet, and at the end of a month or so the mother, not seeing any marked improvement in the state of the legs, loses heart, and the treatment is not carried out as rigidly as one would wish.

In 1888, the late Mr. Rhinallt Pughe, appreciating these difficulties, adopted the more radical method of at once bending the bones straight with his hands, producing a green-stick fracture at the maximum point of the curve, and then applied splints. These were removed next day, and plaster-of-paris substituted. This was taken off at the end of four weeks, the child kept off its feet for four weeks longer, and then allowed to walk ; constitutional treatment being, of course, carried out at the same time. The results were most satisfactory, and I think I am justified in saying that, as a consequence, there has of recent years been a large increase in the number of children brought to the Infirmary to have their legs straightened, as the following figures, taken from the records of the hospital, will show :

In 1888, Mr. Pughe straightened 30 legs, and in 1893 I straightened 311, the total number since 1888 being 778. These numbers include, beside knock-knees and bow-legs, a peculiar but by no means uncommon rickety deformity, which very seriously interferes with the child's walking, and for which I have with great advantage performed osteoclasis of the lower end of the femur. I refer to rotation outwards of both lower limbs, so that when the child is lying on its back the patella, instead of looking forward and outwards, looks directly outwards ; and the foot, instead of resting on the heel,

rests on the whole of its outer border. Though osteoclasis for rickety deformities is by no means a novel method of treatment, and was practised somewhat extensively in France and Germany fifty years ago, still, so far as I can learn, it was practised on children older than those whose cases I have related to you, and the bones were broken by means of some form of osteoclast, and not by the hands alone; in fact, osteoclasis was substituted for osteotomy, rather than substituted, as I have done, for splints.

At the Glasgow meeting of the British Medical Association, Professor Ogston strongly recommended the immediate and forcible straightening of knock-knees and bow-legs in young children, and though many surgeons in England, I believe, practice osteoclasis for curved tibiæ, comparatively few do so for genu valgum. The objection, it is said, being that in forcibly straightening a knock-knee you produce a separation of the lower epiphysis of the femur, and so interfere with the subsequent growth of the limbs. And in a deservedly popular work on the diseases of children the practice is condemned in the strongest terms. Now, I have on several occasions forcibly straightened a knock-knee on one side only, and examined the children eighteen months afterwards and found absolutely no difference in the length of the limbs; and, further, I have made it a practice to examine carefully at the time of operation for the seat of fracture, and find that it almost invariably takes place at a point where the lower end of the femur joins the shaft, and quite an inch above the epiphysial line. Rickety bones while soft can be readily fractured at the exact point at which you wish to break them, and are easily moulded into good position, even the anterior curvatures of the lower end of the tibiæ can be thus straightened; and, further, by straightening the soft and growing bones, one obviates the necessity of performing the more serious operations of osteotomy and the taking out of wedge-shaped pieces of bone in later childhood.

Again—and I take this to be a matter of considerable importance, in gradually straightening a knock-knee with splints—there is a great tendency for the ligaments to yield as well as the bones, a flail-like joint resulting, whereas in osteoclasis the bone alone gives way. My hands are the only osteoclasts I have ever used, and there are one or two practical points worth bearing in mind in thus performing osteoclasis. First, as regards curved tibiæ, if it is a simple lateral curve, to break the bone at its greatest convexity one should not attempt to break it as one would a stick, but grasping the limb (say it is the right leg) firmly with the left hand at the point at which you wish to produce the fracture, and, keeping the left hand perfectly steady, using the thumb as

a fulcrum, slowly over-correct the deformity with the right hand until the bone is fractured. It is important that the bone should be fractured and not merely bent, for the tendency of the bent bone to resume its former position is so great that the bandages are apt to become tight and the foot to swell, or the child's delicate skin to blister at the points where the splint presses. In an anterior curvature of the tibia I fracture the bone laterally, and then immediately mould the limb into good position and apply a back splint with a footpiece, it being usually necessary in these cases to at the same time divide the tendo-Achillis. In forcibly straightening a knock-knee (say of the right side) I grasp the thigh firmly with my left hand about two inches above the patella, using my index finger supported by my other fingers as a fulcrum, and holding the thigh perfectly steady with this hand gradually straighten the limb, the knee-joint being kept over-extended the whole time. There is no doubt that in children over four years of age considerable force is sometimes necessary, but it is not entirely a question of strength, there is some little knack in doing it, for I have known house surgeons who were much stronger men than I am fail where I succeeded. And I can much more easily straighten legs now than I could three years ago. If, however, in attempting to forcibly straighten a crooked bone one has to use so much force as to render it uncertain where the fracture will take place, then, as the object is to straighten the bone and not simply to break it, you had better desist and perform an osteotomy.—*British Medical Journal*, *August* 25, 1894, *p.* 413.

38.—ON ARTHRECTOMY.

By Frederic Eve, F.R.C.S., Surgeon to the London Hospital.

The typical resections, to which we still accord a traditional veneration, have given place, for the most part, to arthrectomy or partial resection. By the latter (partial resection) I mean, of course, excision of such of the articular surfaces of a joint as are too extensively implicated for the disease to be removed by erasion. Again, in regard to incisions, we should select those which best expose the disease in each particular case, rather than allow ourselves to be hampered by any hard and fast rules. The character of our operations must be guided chiefly by the following considerations, namely, the extent of the disease, especially of any osseous lesions, the desirability of obtaining movement or firm ankylosis in each particular joint, and, lastly, the probable ultimate result as regards shortening. The extent of the disease can usually only be gauged when the joint is laid open, but the considerations in respect of mobility and of shortening are chiefly influenced by the individual joint.

Hip.—In the hip-joint, resection of the head of the femur is indicated for the purpose of exposing the acetabulum and the cavity of the joint, and on account of the frequency of bone disease. According to Riedel, sequestra are present in one of the articular surfaces in 70 per cent. of cases. Further, the shortening in resection above the trochanter is not considerable because, as Ollier asserts, the growth at the upper epiphysis of the femur is only half that at the lower after the age of 4 years. He estimates that if the operation be performed at the age of four years, the resulting diminution in length from removal of the upper epiphysis will be about 3 inches. I think that arthrectomy is not likely ever to gain a following in operations on the hip, owing to the frequency of bone lesions, the slight disadvantages as regards shortening following removal of the head alone, together with the great frequency of recurrence, even after resection. Tiling suggests exposing the joint by resection of the great trochanter, and subsequently, after performing arthrectomy or partial excision, replacing it and fixing it by bone pegs or sutures. This method appears worthy of a trial.

Knee.—In the knee the conditions are much more complicated, for the removal or destruction of the intermediary cartilages leads to great shortening, which amounted in one case recorded by Pemberton to 9 inches, of which $3\frac{1}{2}$ were made up by the bone actually removed. This is accounted for by the fact that the lower epiphysial line of the femur and the upper of the tibia are responsible for twice the amount of growth to that provided by the upper end of the femur and the lower end of the tibia respectively. Even resection of the articular surfaces within the epiphysial lines (intra-epiphysial resection) leads to considerable shortening. This is proved both by clinical observation and by the experiments of Ollier, who found that removal of the cartilage and of a thin layer of bone from the lower ends of the radius and ulna of rabbits led in $2\frac{1}{2}$ months to a shortening of the radius by 5 mm. and of the ulna by 2 mm. It should, however, be borne in mind that in all such experiments the limb can obviously not be used ; and we must, therefore, reckon disuse as one of the factors leading to diminished growth. The effect of impaired function in diminishing the growth of a limb is manifest after disease of a joint, such as the knee, treated by conservative methods. In a case observed by Hoffa, it amounted to 18 cm. (7 inches) in twelve years. Infantile paralysis furnishes another familiar and well-marked example of arrest of growth from disuse. But impaired function and trophic disturbance constitute only factors; and I incline to agree with Hoffa that the marked shortening in some cases, both after intra-epiphysial resection and after conservative treatment, is

mainly due to the effects on the intermediary cartilages of tuberculous foci and sequestra in the epiphyses. I do not see how the great differences in the amount of shortening after intra-epiphysial resection can otherwise be explained. Thus in the three cases with the least amount of shortening (of the 130 cases collected by Hoffa), the diminution amounted to 6 cm. in twelve years, $3\frac{1}{2}$ in eight years, and 2 in six years, whereas the greatest shortening was in one case $13\frac{1}{2}$ cm. in six years, and 12 cm. in four years. In the last case only a thin layer of the articular surfaces is stated to have been removed. I find on examining these cases that suppuration and subsequent fistula formation appeared to have no influence on the result; and all the operations were performed in the pre-antiseptic period.

Now, as regards the results of arthrectomy, it is abundantly proved that no shortening follows as a rule. Of 44 cases of arthrectomy of the knee-joint in which the result was satisfactory, out of 70 collected by Mandry, in none could shortening to any degree be detected. But in three cases there was lengthening of from 1 to $1\frac{1}{2}$ centimetres. Unfortunately, the operation of arthrectomy in the knee has certain drawbacks of such a serious nature as to cause Lucas Championnière and others still to practise resection, even in children. These disadvantages are the greater difficulty of removing the diseased synovial membrane, especially from the posterior aspect of the joint, the danger of overlooking osseous foci lying beneath the articular surfaces, and the fact that ankylosis is much less firm; there is, therefore, a greater liability to the occurrence of flexion. That these objections are not ill-founded is evident from the statistics of Mandry above referred to. Thus, of the 70 cases, in 19 the disease returned, ankylosis was only obtained in 32, and a movable (!) joint in 8, whilst flexion or contraction took place in a number of cases. Nevertheless, the indications as regards children are clearly in favour of arthrectomy; and when this is impossible, partial resection, which has been found to lead to much less shortening than typical resection (Neugebauer). The latter should be reserved for the worst cases of osseous disease. Senn suggests that where an osseous focus necessitates the excavation of a large cavity in an articular surface, the cavity should be filled up with decalcified bone chips (mixed with iodoform) to form a framework for the reparative material. I do not despair of our ultimately obtaining, in the most favourable cases, a movable joint, but it is evident that to make the attempt with any chance of success the crucial and the lateral ligaments must be preserved, or the latter sutured after division; but in the majority of cases, where firm ankylosis is desired, I think it may be advantageous to remove the cartilages only by shaving with a knife. It will be of interest

and value to hear the opinions of those present as to the incision by which the best access to the joint is obtained. For my own part, I have always found the old flap incision sufficient, dividing the ligamentum patellæ, and subsequently suturing it. The division of the patella has this disadvantage, that in case of recurrence it exposes a fresh osseous surface to the risk of infection. In resection, I consider fixation of the sawn surfaces by silver wire or pegs unnecessary, especially if the limb be placed in a plaster case. Even when primary union occurs, wire sutures frequently lead subsequently to troublesome ulceration of the skin, and sometimes to caries of the bone. It is hardly necessary to insist here on the necessity of excising the capsule, of removing every particle of diseased tissue, and of searching carefully for softening patches in the bones; and not only should caseous foci themselves be removed with the sharp spoon, but also any surrounding osseous tissue affected with rarefactive osteitis or with sclerosis. Such cavities may be touched with the thermo-cautery. Ulcerations of the articular surfaces may be shaved off, for Watson Cheyne has shown that the tuberculous disease only extends to the depth of $\frac{1}{8}$ of an inch.

Ankle.—In operations for tuberculosis of the ankle-joint and astragalus, I have used with advantage a single incision, extending from the centre of the anterior surface of the joint outwards and downwards to the external malleolus, and curving round that process to its posterior surface. No tendons need be divided, the peronei being removed from their groove and turned upwards, while the extensor tendons are pulled inwards towards the internal malleolus with a hook. After division of the external lateral and anterior ligaments, the foot can readily be turned inwards on the inner side of the leg, the whole joint surface being thus exposed to view. The division of all the extensor tendons and anterior tibial artery by an incision over the front of the joint, I look upon as an unnecessary mutilation. I have found it necessary in five consecutive cases to remove the astragalus, and think it usually advisable, as this bone is frequently diseased; and by its removal a freer access to the joint cavity is obtained. The articular surface of the tibia and the malleoli are left if unaffected, otherwise erased or resected, according to their condition. The results as regards firmness and mobility of the joint afterwards are excellent.

Os Calcis, &c.—Time will not permit me to speak of operations on the tarsus, but I may mention, in regard to the remarkable repair which takes place after erasions and excision, that Le Dentu records a case of excision of the os calcis, astragalus, and scaphoid in which he implanted a piece of decalcified bone. "It was followed by abundant new formation of bone, with almost complete restoration of function."

Shoulder.—In dealing with the joints of the upper extremity we must bear in mind that the growth of the limb is mainly effected by the upper epiphysis of the humerus and the lower epiphyses of the radius and ulna, while the epiphysial lines on each side of the elbow-joint grow only half as quickly as those at the opposite ends of the bones. Hence the importance, in operations on the shoulder and wrist, of preserving intact the epiphysial lines and, if practicable, the articular surfaces of the humerus or radius and ulna respectively. For the purpose of exposing the shoulder-joint without removing the head of the humerus it has been suggested to combine with an anterior incision temporary resection of the acromion, which is subsequently fixed in position by sutures.

Elbow.—In dealing with tuberculosis of the elbow-joint arthrectomy or partial resection is the line of treatment to be aimed at in practice. I think it of great importance in regard to the ultimate power and mobility of the joint to preserve the olecranon process, although, unfortunately, the ulna is more often the seat of osseous lesions than any of the other bones; and that in a joint in which about 75 per cent. of the cases are examples of primary osseous tuberculosis. In one case in an adult I scraped away a large caseous focus from the ulna and obtained a permanent cure with good movement. The joint was opened by two lateral incisions on each side of the olecranon; and this procedure I consider much better than a posterior incision, with division and subsequent suture of the olecranon. The latter operation I performed in 1888, and in two or three subsequent cases, but found, after resection of the humerus, a great tendency to ankylosis between it and the line of division of the olecranon.

Wrist.—As regards partial excision of the wrist I am glad to have the opportunity of showing you a case in which, four years ago, I removed the first row of the carpus only, and a wedge-shaped piece on the ulnar side of the radius, including the radio-ulnar articulation. This appeared to be the primary seat of disease. The restoration of function is so good that the patient—a young lady—plays the piano with facility, and there is only 2 cm. shortening on the radial side.

The word amputation—too often the signal of failure—has not been mentioned; nor have I spoken especially of neglected cases, in which suppurating sinuses have been allowed to form. The subject, indeed, on which, at the invitation of our Secretaries, I have been privileged to make these fragmentary remarks, is an extremely extensive one—of great importance and familiar to every surgeon. It is also one on which the widest divergencies of opinion and of practice exist on many questions. For these reasons I look forward to a valuable discussion.—*British Medical Journal, August* 25, 1894, *p.* 410.

39.—THE VALUE OF BURSAL ENLARGEMENTS AS INDICATIONS OF INCIPIENT TUBERCULOUS ARTHRITIS.

By D'Arcy Power, M.B., F.R.C.S., Surgeon to the Victoria Hospital for Children.

[Mr. Power's paper contains the reports of six examples of the condition he describes, all seen within the present year.]

I have recently had under my care several cases of enlarged bursæ in the neighbourhood of the hip-joint in children. There was nothing to indicate that the joint was affected at the time I first saw the patients. They did not limp, they did not complain of pain, there was no muscular fixation, and the head of the bone moved freely in the acetabulum. I did not pay much attention to them in the earlier cases, but it has recently been brought home to me that such passive enlargements of bursæ are often of very serious import, and are of great diagnostic value, for they are frequently the first indication of tuberculous mischief occurring in a patient who otherwise appears sound. The tuberculous trouble thus starting in the bursa will spread rapidly to the joint unless care be taken to prevent it. The joint may be affected by the direct spread of tubercular inflammation from the bursa, as by the bursting of an abscess into its cavity; but this extension does not happen if ordinary care be taken. The second method is the more insidious, but at the same time the more frequent. The child is on the verge of tubercle, for the bacillus has located itself in a single bursa, and there causes a passive effusion. This lodgment the tubercle bacillus has been able to effect owing to some slight injury to which the bursa has been subjected, leading to a diminished resistance on the part of the tissues. The congestion produced in the neighbouring parts by the inflammation of the bursa is sufficient to enable the tubercle bacillus to effect a further lodgment, and thus an arthritis is started. The newer pathology would explain the sequence of events in a somewhat different manner.

The congestion leads to increased multiplication of the tubercle bacilli; increased multiplication means increased invasion of the affected tissues by the various forms of leucocytes attracted owing to their chemiotaxic properties by the bacilli. The destruction of phagocytic leucocytes which then takes place gives rise to the caseating masses which we know as tubercle. These masses are destructive to the functions of the joint in which they are formed, and, if they become septic, are even inimical to life itself.

Although the passive enlargement of bursæ is incidentally mentioned in most text-books of surgery, I have never seen much stress laid upon it from a diagnostic standpoint, yet it is evidently of considerable importance both in diagnosis and in prognosis. In diagnosis, because effective treatment should at once be adopted ; in prognosis, because it is clear that, unless great care be taken, the worst results are to be apprehended. The treatment to be adopted is that given in the successful cases. It follows directly from the pathology. If the passive effusion into the bursa be seen before suppuration has occurred the fluid should be let out by means of an incision rather than by aspiration. Why, we know not, but we do know that in such passive effusions due to tubercle, and notably in tuberculous peritonitis with simple effusion, a cure more often follows from a free incision than from a puncture, even though the wound afterwards heal by first intention. If suppuration has occurred the abscess must be opened, scraped, thoroughly cleansed, and every effort must be made to get it to heal at once. Union by first intention is of vital importance in these cases, for if it can be secured the patient will in all probability escape further trouble. Suitable precautions are to be taken at the same time to secure physiological rest for the joint, whilst the general hygiene of the patient must be improved, for it should never be forgotten that when the bursæ are enlarged in this manner the patient has already passed the threshold of tubercular disease. If the wound fail to heal by first intention there is danger lest the slight increase of inflammation thus produced may hasten the tubercular process, and thus the operation will have done more harm than good. It is perhaps better for this reason not to insert a drainage-tube, but to close the wound in its whole extent.—*British Medical Journal, August* 25, 1894, *p.* 412.

40.—ON HALLUX RIGIDUS.

By Mayo Collier, M.S. Lond. ; F.R.C.S., Eng.

By hallux rigidus I mean a stiff and painful condition of the metatarso-phalangeal joint of the great toe, usually consequent on and associated with flat-foot, and, like flat-foot, not necessarily confined to one foot, but more often sooner or later affecting the same joint of the opposite foot. The victims of this disorder are usually young persons at or about puberty. Males would appear to be more often affected than females (the same being true of flat-foot), no doubt due to the fact that young males are more frequently employed in arduous work, necessitating more standing and the carrying of heavier weights than in the case

of young females. This affection is not necessarily associated with any permanent constitutional ailment or tendency, unless it be a want of vascular and muscular tone and some impairment of nutrition. The affected foot presents a peculiar and characteristic appearance. In the first place, it is a long foot—it is an abnormally long foot for the size of its owner. Next, the foot is nearly always cold, damp, and more or less blue, the tone of its vessels, as well as its nutrition, being apparently impaired. The distortion of the foot is characteristic and peculiar, and is due to the fact that any pressure between the head of the metatarsal bone and the sesamoid bones on the tendons of the short flexor cannot be tolerated. The metatarsal bone is flexed on the tarsus, and is adducted to the mid-line from its fellows. With this the proximal phalanx is slightly flexed, but never, so far as I have observed, to such an extent as to warrant the application of the term "hallux flexus." The head of the metatarsal bone appears through the skin to be enlarged, and there is found sometimes some lipping of the cartilage of this bone at its under and lower aspect, in the neighbourhood of the sesamoid cartilages. In early cases pain is not usually complained of until the end of the day, and then mostly after long standing or much walking; but as the disease progresses the pain is continuous, except when the patient is not standing and at night. The joint is never red, painful, or tender to the touch, except on manipulation, and gives no indication of containing fluid or of being the seat of acute mischief. Flexion of the joint is generally readily permitted, but any attempt at extension elicits opposition and evidence of acute pain on the part of the patient. This affection being a comparatively rare one, the recorded cases being few, and the literature—even in the most recent and important works—being scanty or entirely absent, the account now given of this disease is the result of the close and prolonged observation of seven cases, one female and six males, treated by me at the North-West London Hospital. Two other cases, one male and one female, treated in private practice, may be added to this list. My first case was that of a young female, aged 16 years, presenting all the symptoms above enumerated. This case was treated after the orthodox methods of tonics, rest, frictions to limb, and so-termed appropriate boots. After six months of this treatment things were rather worse than better. The case was now taken into hospital, and by advice of some of my colleagues the tendons of the short flexor adductor and abductor were divided, and the joint freely moved. This method of treatment was as unsatisfactory as the last. Things were now again rather worse than better. On this second disappointment I proposed to open the joints from above by a linear incision to

examine it, and, if diseased, to remove the head of the metatarsal bone. This was done. Caries with marked absorption from pressure existed on the under aspect of the head of the bone at the points of contact with the sesamoid bones in the tendons of the flexor brevis pollicis. The cartilage was almost completely worn off the points of contact, leaving the subjacent bone bare and congested. There was also some lipping of the adjacent margin of cartilage, and at spots invasion by granulations passing in from the synovial membrane. The cartilage of the rest of the bone, as well as the proximal phalanx, were healthy. The cartilage on the sesamoid bones was gone, and the subjacent bone was eroded. There was no fluid or extra synovia in the joint. The disease was apparently caries and absorption from pressure. This case did well. Healing took place by first intention. A movable joint with excellent range of motion and complete control was the result, and the girl is now in domestic service and can perform all her duties without the smallest impairment of the original functions of the joint. The six other cases are males, young adults, all below 20 years of age. In three the disease was symmetrical, necessitating operations on both feet. One case is now in hospital, recently operated on, and, like the others, showed well-marked absorption and distortion of the head of the bone at the points of contact with the sesamoid bones. The same joint of the opposite foot is in an early stage of the same disease.

To sum up, I have diagnosed, treated, and subsequently operated on nine cases, two females and seven males, and in all but two the subjects were young adults between 16 and 20 years of age. In all the disease was associated with flat-foot, cold feet, and impaired nutrition. After a preliminary trial of tonics, frictions, and appropriate boots, all were operated on, and the head of the metatarsal bone was removed. The joints healed in all cases by first intention, and a movable and useful joint has resulted.—*The Lancet*, *June* 30, 1894, *p.* 1613.

NERVOUS SYSTEM.

41.—ON THE DIAGNOSIS AND PROPHYLAXIS OF INTRA-CRANIAL COMPLICATIONS FROM EAR DISEASE.

By P. McBride, M.D., F.R.C.P., Aural Surgeon to the Royal Infirmary, Edinburgh.

The intra-cranial dangers from ear disease which are most to be dreaded resolve themselves into—(1) Meningitis; (2) phlebitis of the cerebral sinuses, especially the sigmoid; (3) abscess. We

may, I think, put aside the risks of hemorrhage resulting from arrosion of the lateral sinus, while bleeding from the carotid does not fall within the scope of our subject.

I believe that the first manifestation of danger will invariably, or almost invariably, be pain in the ear, or perhaps over the mastoid. Sometimes the latter is distinctly tender, or it may show evidence of inflammation either in the form of external swelling or projection of the auricle, resulting from exudation between the bone and the cartilaginous meatus. I cannot help thinking that a good deal of misconception exists with regard to so-called mastoid periostitis. For my own part, I am always inclined to think that, given deep-seated pain in the ear with some pyrexia and a tendency to rigors, the appearance of distinct external evidence of inflammation over the mastoid is a favourable rather than an unfavourable symptom, for it indicates that the spread of inflammation is outward rather than inwards. Tenderness without any external evidence of inflammation is of much graver import, indicating, as it does, deep ostitis.

Pain in the ear is soon followed by diffuse headache, and vomiting may or may not occur. Whenever this state of matters has been reached, or, indeed, whenever in a case of middle-ear suppuration danger seems to threaten the patient from this cause, drainage is urgently indicated, and one of the operations to be referred to later should be performed.

We must now turn very briefly to the diagnosis of intra-cranial mischief as it results from ear disease. I shall presently touch upon the differential diagnosis of the different forms of inflammation which may attack the brain and its membranes. First, however, we must ask ourselves whether it is possible to distinguish commencing intra-cranial mischief from the symptoms liable to be caused by retention of pus in the middle ear. I venture to think not, for both conditions give rise to pain, both may be associated with rigors and vomiting, in both we may have giddiness, and sometimes optic neuritis has been found absent in the graver lesion and present in cases which have recovered without operative interference. These facts being as they are, we are often left in doubt at the very threshold of our subject. It is therefore all the more important to establish free drainage from the middle ear early in the case. Manifestly, if serious symptoms continue after this has been done, we may suspect that the intra-cranial structures have become implicated, or it may be that in removing diseased portions of the temporal bone we have to do so to such an extent that an extra-dural abscess is opened and drained, as occurred in one of my own cases, where the patient made an excellent recovery.

The extension of pyogenic organism to the brain and its membranes may give rise to—(1) abscess; (2) meningitis; (3) phlebitis of the sigmoid and other sinuses. Can we differentiate these conditions? We have seen how difficult it often is to decide when inflammation has already attacked the intra-cranial structures. We have now to point out how hard it is, given the existence of suppuration within the skull, to determine its exact nature.

It is no uncommon thing to meet with septic thrombus of the sigmoid (or other) sinus, purulent meningitis, and abscess in the same case, while two of these conditions, of course, still more frequently co-exist. It is a regrettable fact that, brought face to face with the intra-cranial complications of ear disease, the dicta of the text-books are of little use. In such a case it is probably best to begin by having an hourly, or at least a two-hourly temperature chart prepared. If we find very marked fluctuations within short periods, and if rigors be severe and frequent, associated with perspirations, we may suspect septic thrombosis, which in most cases has involved the sigmoid sinus.

Time does not permit me to enter upon the signs and symptoms which differentiate a thrombus in this vein from a similar condition of other sinuses. Suffice it to say that not uncommonly the jugular can be felt to be corded, and that more or less œdema of the mastoid and adjacent region may be found, while there is marked stiffness in the neck. Both conditions, however, may be readily similated by inflammatory swelling of the glands under the sterno-mastoid, and by inflammation of the mastoid bone.

Again, it has been said that in thrombosis of the sigmoid sinus there is defective filling of the jugular on inspiration, but I have not been able to verify this symptom. In not a few cases evidences of septic changes in the lungs, and even in other parts, are met with. The presence of a patchy pneumonia, if it exist, will therefore form corroborative evidence of the existence of septic thrombosis.

Let us now ask ourselves by what signs and symptoms we are to differentiate the condition just described from diffuse suppurative meningitis. In both cases there is a headache, in both there may be optic neuritis, and in both there is pyrexia. The latter is, however, more continuous in meningitis, there is an absence of the marked remission and rigors, there is perhaps more intolerance of light in the early stages, and, finally, a greater degree of tenderness. The diagnosis of suppurative meningitis is, moreover, often complicated by the possibility of its being of tubercular origin, and then another difficulty is added to the already difficult task.

Intra-cranial abscess is the next complication the diagnosis of which we must consider, and the chief question is whether in this condition there are found any symptoms which definitely distinguish it from meningitis. In spite of the elaborate semeiology which has been described in connection with cerebral abscess, I have very grave doubts whether for purposes of differentiation any points other than the following are of importance in the majority of cases, viz.:—(1) Pulse, (2) temperature, (3) percussion tenderness. Undoubtedly pulse and temperature are the most important. If either or both be persistently subnormal, strong probability points to a localised collection of pus. This may also be suspected if at some period of the case either have been noted to be considerably below the normal. Sometimes localised percussion tenderness is of value, but it is at best of secondary importance. Sometimes a chronic abscess may be diagnosed by the following combination of symptoms;—(1) Pain in one ear which is the seat of suppuration; (2) optic neuritis; (3) subnormal pulse and temperature; (4) continuous headache. Alike in meningitis and abscess, so-called focal symptoms are usually absent. When they do occur in a comparatively early stage, their existence is presumptive evidence in favour of abscess. In the later stages of meningitis it is, of course, possible that various nerves may become involved, while paresis in the regions supplied by the pneumo-gastric, glosso-pharyngeal, and spinal accessory nerves has been observed in thrombus of the sigmoid sinus and jugular. In a suspected case, then, if we have evidence of hemiplegia, paresis of the third nerve, rapidly increasing deafness on the opposite ear, without apparent cause or other localising symptoms, we may from these draw conclusions in favour of abscess. It has been suggested that estimation of the quantity of pus issuing from the affected ear may be utilised in certain instances, and Macewen records a case in which examination of the ear revealed erosions in the tegmen tympani from which pus issued. Probably the upper part of the tympanic cavity is here intended, for the tegmen tympani cannot be seen through the speculum.

These methods of examination seem to be of value in the few cases where positive results can be obtained, and the same statement applies with even greater force to cases in which a fistulous communication can be discovered. When all is said, however, the diagnosis of intra-cranial abscess can rarely be arrived at with any degree of certainty. It may be noticed that I have not referred to the state of the pupils, as I doubt whether their condition alone has much differential value, and I have endeavoured to touch only upon points which appear to be of special importance.

Even assuming, however, that we have been able to diagnose the existence of an abscess, another grave difficulty confronts us. Is the pus in the cerebrum or cerebellum? There are certain points which may in some cases be of use as guides on this point. Thus if there be marked involvement of the mastoid region, the probability of cerebellar abscess is greater than where the symptoms are confined to the tympanum. Again, if the tuning-fork test points to nerve deafness, we may, if other symptoms lead to the suspicion of cerebellar mischief, be thus strengthened in our surmise. It is said that very marked sickness, great pain, especially in the occipital region, and giddiness, are more or less characteristic of cerebellar mischief. Macewen seems to attribute importance to slowing of the respiration, yawning, clenching of the teeth, and retraction of the head as evidences of cerebellar abscess. Perhaps, however, our working hypothesis ought at present to be the greater probability of abscess in the temporo-sphenoidal lobe; for no statistics adverse to this statement have yet been adduced. Unless, therefore, the symptoms point very conclusively to the cerebellum, the cerebrum ought first to be explored; and in weighing these symptoms we must not forget that both giddiness and vomiting may be due to ear disease alone.—*Edinburgh Medical Journal, April*, 1894, *p.* 910.

42.—ON THE SURGICAL TREATMENT OF INTRA-CRANIAL TUMOURS.

By Byrom Bramwell, M.D., F.R.C.P.

[The following is an excerpt from an important paper dealing with the whole question of Intra-cranial Surgery:]

In order to put the matter upon a definite basis, so far as my own observation enables me to judge, I have taken the trouble to make an analysis of all the cases of cerebral tumour which I have had the opportunity of seeing during life, and which I have examined post-mortem.

Analysis of Cases seen during Life.—I have notes (in many cases very incomplete) of 10,115 cases of general medical disease seen either in hospital or in private practice. Amongst these there are 82 cases of intra-cranial tumour = ·8 per cent. (I have only included the cases in which the diagnosis seemed to me to be reasonably certain; I have omitted all—and they constitute, of course, a considerable number of cases—the doubtful cases.) This percentage does not, it must be remembered, represent the true proportion in which intra-cranial tumours occur in

relationship to other diseases. I have had special opportunities of seeing cases of intra-cranial tumour, both in private and in hospital practice.

Analysing these cases, I find that in 1 case a tumour was found post-mortem, the presence of which was not indicated by symptoms during life ; in 18 there were no localising symptoms, or the localising symptoms were insufficient to indicate the position of the tumour ; in 32 cases (and I include in this category 12 cases of tumour of the cerebellum) the position or large extent (1 case) of the tumour precluded successful operative interference ; in 1 case the tumour was (judging from the clinical evidence, and this was verified post-mortem) multiple ; in 5 the tumour was malignant (cancer or melanotic sarcoma) in character ; in 20 cases the patients improved so markedly under treatment that operative interference was deemed unnecessary. The great majority of these were syphilitic cases. In 4 of them the subsequent course of events showed that an operation would perhaps have been advisable. Two of the four occurred nearly twenty years ago. In one of them the relapse which caused death was the result of a head injury.

The total result is, that in 77 out of the 82 cases which I have seen during life, operative interference was (for one or other of the reasons mentioned above), in my opinion, contra-indicated when the patient was seen by me.

Of the 5 remaining cases, in 2 the success of an operation would, I think, have been extremely doubtful ; in the 3 remaining cases an operation might (I think, looking back on the facts) have probably been attended with success.

Of the 5 cases in which an operation should, I think, have been performed, 3 were out-patients of the Edinburgh Royal Infirmary ; 2 of the 3 were only seen by me on one occasion ; 1 of them was admitted to the wards as an in-patient ; in the third case, the diagnosis was by no means clear when I saw the patient, but the subsequent course of the case, which Dr. Proudfoot, of Kirkcaldy, has kindly made me familiar with, seems to show that the case was one of tumour. The fourth has been published in my *Atlas of Clinical Medicine*. Looking back on the facts of that case, an operation ought, I think, to have been performed, but for several reasons, which I need not now specially mention, this seemed a doubtful proceeding at the time when I saw the patient. The fifth case was a clear case for operation—not, however, when I saw the patient, for at that time the lesion was in a very early stage, and the diagnosis was attended with considerable uncertainty. In a sixth case, which was seen with Dr. Struthers, of Leith, and has been published in the *Edinburgh Medical Journal*, the question of operation was discussed, but rejected, partly because the diagnosis at the time

of the consultation was by no means certain, and partly because of the peculiar mental disposition of the patient—she would not hear of anything being done.

From these statements it will be seen that the proportion of cases in which, judging from the clinical evidence, a tumour of the brain is likely to be successfully removed by surgical interference, is very small. It is possible that my experience may have been exceptional, and that I may have been unfortunate in meeting with such a small number of cases in which the tumour was capable of being removed successfully by the surgeon, but my figures are large ; and my main conclusion seems entirely corroborated by the fact that Prof. Annandale, with his immense experience both in private and hospital practice, has only been able to bring one case before our notice, and that none of the other surgeons who have taken part in the discussion have been able to tell us of any successful cases. No doubt, if there had been any other successful cases we should have heard of them.

Further, this clinical experience is entirely corroborated by the pathological experience which I have gained from the examination of cases of intra-cranial tumour after death. Of the above 82 cases which I have observed during life, 22 were examined post-mortem. Further, during the time that I acted as pathologist, either to the Newcastle Royal Infirmary or to the Edinburgh Royal Infirmary, I had the opportunity of examining 28 cases of intra-cranial tumour which had died under the care of other physicians.

Of my own 22 cases, the successful removal of the tumour during life would, judging from the conditions found after death, have been impossible in 17 ; in the remaining 5 cases the tumour might probably have been successfully removed had its position been diagnosed and an operation undertaken. But in 3 of these 5 cases operative interference was precluded by the fact that there were no localising symptoms. In one the patient completely recovered for a time under treatment, the symptoms subsequently relapsing after a fall from a considerable height. In one the tumour was so extensive (involving as it did a large part of the frontal lobe and the adjacent part of the motor area) that an operation would in all probability have proved fatal.

Of the 28 cases which were examined post-mortem, but which had been under the care of other physicians, there was only one in which, so far as I could judge from the post-mortem appearances, the removal of the tumour could have been successfully performed.

Of course, there is a fallacy in judging of the question of successful operative procedure by the pathological conditions which are found after death ; for some tumours, which at the

time of death are so extensive as to preclude successful removal, may, in their early stages, have been limited, and therefore capable of being cut out. I doubt, however, whether this source of fallacy affects my figures in any material degree.

Further, it must be remembered that the post-mortem evidence is in one respect much less reliable than the clinical evidence in enabling one to form an opinion as to whether a tumour could have been successfully removed during life or not ; for in some of the cases of intra-cranial tumour in which the post-mortem examination shows that an operation could have been successfully performed, the clinical evidence would have contra-indicated an operation. In some of these cases there are no localising symptoms to indicate the position of the tumour during life.

As the result, then, of my whole experience, I have no hesitation in saying that it is only in a very small proportion of cases that an intra-cranial tumour can be successfully removed during life.

But although it would appear that there are comparatively few cases in which the surgeon can hope to successfully remove an intra-cranial tumour, I agree with Prof. Annandale in thinking that operative procedure—trephining the skull—as a palliative remedy is often desirable. In my work on *Tumours of the Brain*, which was published now some eight years ago, I advocated, but by no means so strongly as I would do to-day, the operation of trephining for the relief of symptoms in cases in which there is great increase of the intra-cranial pressure, and in which drug treatment (purgatives, large doses of iodide of potassium, &c.) has failed. When I published that work I was not aware that Prof. Grainger Stewart, or, indeed, anybody else, had advocated the operation of trephining as a purely palliative remedy. As I have just stated, I would now go further than I did eight years ago. I believe that there are many cases of intra-cranial tumour in which palliative trephining should be carried out. In not a few cases the headache is intense, and it has been conclusively shown that in some of these cases sudden death takes place, apparently as a result of the mere severity of the pain and sudden inhibition of the action of the heart.

Again, in other cases in which the intra-cranial pressure is greatly increased, the patient dies either suddenly in an epileptic fit, or gradually as the result of failure of the respiration. Although, as Mr. Duncan has just pointed out, it is by no means easy to establish a continuous drain of the cerebro-spinal fluid from a trephine opening, experience has, I think, conclusively shown that opening the dura mater does materially reduce the intra-cranial pressure, and does undoubtedly relieve

the headache and other symptoms, which, in cases of this kind, are the source of so much suffering to the patient, and which are so frequently the cause of death.

Further, it must be remembered that in a large proportion of the cases of intra-cranial tumour the optic neuritis is intense, and that in not a few of them the optic neuritis, if allowed to continue, passes on to optic atrophy, and produces more or less, and it may be complete, blindness. Now, it has been conclusively shown that in some cases in which the operation of trephining has been performed, both for tumour and abscess, the optic neuritis has speedily disappeared, in consequence, I believe, of the sudden relief of the increased intra-cranial pressure. I have always been of opinion that increased intra-cranial pressure is an important element in the production of the double optic neuritis which is associated with intra-cranial tumours. This view has been much disputed, and is rejected by most authorities. But I still maintain that increased intra-cranial pressure is a most important factor (I do not say that it is the only factor—see *Intra-cranial Tumours*, p. 44, where I have discussed this point in full) in the production of the condition. The disappearance of the optic neuritis after the operation of trephining goes, I think, far to prove the correctness of this view. But the practical point which I would now urge is, that palliative trephining may prevent the development of post-neuritic atrophy and permanent blindness.—*Edinburgh Medical Journal, June*, 1894, *p.* 1073

43.—ON FRACTURES AND DISLOCATIONS OF THE SPINE AND THEIR TREATMENT.

By William Thorburn, M.D., F.R.C.S., Assistant-Surgeon to the Manchester Royal Infirmary.

[The following excerpt is taken from Mr. Thorburn's first lecture "On the Surgery of the Spinal Cord and its Appendage":]

For our present purpose, we may treat fractures and dislocations together, and speak of them as fracture-dislocations; the commonest injury being a distinct luxation with but slight injury to bone.

It is only in unilateral dislocations that these injuries present any special peculiarities, but the latter undoubtedly form a distinct class of injuries. Their essential peculiarity is that, owing to the fact that but one articular process is displaced, there is often either no injury to the cord whatever, or such injury, if present, is but slight; and again reduction is frequently possible and successful. In one case of this

nature the patient made a good recovery, and lived for three years after his accident, at the end of which time he died of cancer of the liver, when I was able to obtain the specimen which I now show to you.

Leaving the less serious cases, we turn to the true dislocations, which are almost always forwards and downwards. Indeed, the direction of this displacement is so common that all other forms may be regarded as pathological curiosities. In association with this lesion we may, however, note that it is probably not very rare to meet with diastases, that is to say, with dislocation in which the displaced bones have recoiled, so as to leave no permanent disturbance of their relations. In cases of this nature, despite the temporary displacement, the cord may be seriously injured, as in this case in which the disc between the second and third cervical vertebræ is torn across, and in which there was fatal hemorrhage into the brachial enlargement at the level of the fifth cervical segment.

Fractures, on the other hand, may be oblique, transverse, or vertical; but here again they are by far most commonly oblique, from behind and above downwards and forwards, and, even if the broken vertebra be comminuted, the tendency to this obliquity of direction still remains.

Analogous to the distinction between a true dislocation and a diastasis is the distinction between those fractures in which the bony displacement remains and those in which it is succeeded by the recoil of the vertebræ, due either to the falling back of the head or to the elasticity of muscles and ligaments, and the question as to the relative frequency of such recoil has been much discussed.

Thirty years ago Mr. Jonathan Hutchinson wrote: "Permanent compression of the cord, or of any part of it is a very rare event"; and, again, "nothing is more rare than to find any degree of permanent compression." I have also expressed less strongly a similar view, based upon post-mortem experience, but Chipault, in his recent work, questions the conclusion, although certain experiments which he made on the dead body are in agreement therewith.

Under these circumstances I have re-examined the specimens which are now in my possession, and I find that in the cervical region I have 12 cases in which there is no permanent displacement and 6 in which there is such displacement, thus giving a 2 to 1 majority in favour of temporary compression of the cord. In the lumbar region, on the other hand, I find that in the whole of 10 cases there is more or less permanent displacement of the injured vertebræ, but it is by no means certain that the amount of this displacement was sufficient to cause serious pressure upon the spinal cord.

It is, however, to be remembered that the cases of permanent displacement, or of permanent pressure upon the cord, are naturally more serious than those of temporary crushing, and that therefore they will appear in greater number among our pathological preparations. This is probably the reason for the universal presence of permanent compression in lumbar cases, inasmuch as only the worst of these cases come under the hands of the pathologist.

Nature of Injury to the Cord.—Such being the main varieties of injury to the spine, we may now ask ourselves what are the various methods in which the cord itself suffers, and we find these to be as follows:—(1) By far most commonly there is approximation of the laminæ of the vertebræ above to the body of that below, causing crushing of the cord. Such crushing may be associated on the one hand with permanent pressure, as in true dislocation and in fractures which do not recoil; or, on the other with temporary compression, as in diastases and in fractures which do recoil. (2) A fragment of bone may be driven back upon the spinal cord, but such a condition is exceedingly rare. (3) Equally rare, if not more so, is a condition which I show to you in these two specimens, in which an intervertebral disc is, as it were, squeezed out from between the adjacent bones, so as to form a projecting shelf which compresses the theca. (4) And, lastly, the medullary symptoms may be mainly due to the pressure of hemorrhage.

We have next to ask whether we can distinguish these varied lesions the one from the other. In the first place the strong presumption is that the injury is a crush by approximation of the affected bones; but whether such be associated with permanent or with temporary compression, we can as a rule judge only by our somewhat unreliable statistics, although the presence of a marked angular curvature would indicate the persistency of displacement.

Pressure by a displaced fragment of bone we cannot recognise, although asymmetry in the level of the nerve symptoms would be suggestive of such a condition, as in a case which came under my observation. With regard to hemorrhage we might expect that the onset of symptoms after accident would be less immediate than in the case of true crushing of the cord; and this view is to a slight extent borne out by a case which came under my notice some few years ago.

I fear, therefore, that the diagnosis of these various forms of injury to the spinal cord is as yet impracticable.

In two recorded instances there have, however, been excellent results from operation for hemorrhage into the spinal canal. The first of these is recorded by Church and Eisendrath, there being a fracture-dislocation of the tenth dorsal vertebra with

complete paraplegia, and laminectomy revealing the fact that the spinal canal was filled with a firm extra-dural blood clot, which was easily broken down, and which had arisen from tearing of the anterior and posterior longitudinal spinal veins. The clot having been removed by the finger and by irrigation, and all hemorrhage having been controlled, the displaced vertebræ were reduced, and the patient recovered almost completely. The second case, published by Wagner, was one of hemorrhage at the level of the ninth dorsal vertebræ, due to a bullet wound, and causing paraplegia. Three months after the accident there was removed a firm fibrous tissue which had formed in the clot, there being again an excellent recovery.

There is, however, one unusual lesion which can be recognised, and which, perhaps, we may call "gravitating hemorrhage." A case of this nature, of which I have no detailed notes, was admitted to the Manchester Infirmary some ten years ago, the patient having sustained an injury to the neck, followed by paralysis, which spread rapidly up the body from the lower limbs onwards, until in an hour or two he died from respiratory failure. The diagnosis then made was that of hemorrhage into the theca or perithecal tissue, the blood finding its way to the lower part of the vertebral canal, and thus causing ascending symptoms. A similar case, with full details, has recently been recorded by Mr. Bennett; and Lidell reports another example, with a post-mortem examination, in which there was found a tear in the theca in the cervical region, the dura mater being full of, and distended with blood. In such cases the diagnosis is comparatively obvious, and, although we have as yet no facts upon which to build, we are surely justified in hoping for benefit from operation.

As to what operation is most likely to be successful there may be some difference of opinion; but I should be inclined, did I again meet with such a case, to perform laminectomy at the seat of injury and endeavour to arrest the hemorrhage, or at least to give exit to the blood, combining this procedure in the first instance with paracentesis of the meninges in the lumbar region after Quincke's method, or, if the result were not satisfactory, a second laminectomy at the lower part of the spine.

For all practical purposes we have, however, three varieties of injury which call for treatment, namely, permanent pressure upon the cord, temporary crushing of the cord, and hemorrhage. The latter is so rare and so little likely to be diagnosed that we are almost justified in neglecting it. As regards the two former, it is clear that in cases of temporary compression—which constitute the majority—laminectomy is necessarily useless. The crush is over; the cord has already sustained

its maximum of injury, and it lies in the best possible position for recovery, if such be possible. In cases of permanent compression, on the other hand, we may certainly restore the normal lumen of the vertebral canal, but we can hardly hope to do much, if any, good to our patient; in the first place because, as we have already seen, the injured cord will not be capable of regeneration, and in the second place because the extreme mortality—or at least persistency of symptoms—in the cases of temporary compression is such that we can hardly hope for benefit in the more severe cases in which the compression has been permanent.

So much being premised, I will now relate the details of seven cases in which I have performed or assisted at laminectomy for injuries of the cord, five of these cases having been under the care of my colleagues and two only being my own operations :—

Case 1 (under the care of Mr. Hardie).—Total paraplegia and paranæsthesia below fifth cervical roots, with loss of reflexes. Operation twenty-four hours after accident; removal of fifth and sixth cervical arches; theca appeared perfectly normal. Death in twenty-four hours; no compression, but cord flattened.

Case 2 (under the care of Mr. Hardie).—Similar symptoms and operation at same level. Death forty-eight hours later. Complete smash of fifth cervical vertebra, cord crushed. The specimen shows that no good would have been done by removal of anterior prominence.

Case 3 (under the care of Mr. Jones).—Incomplete paralysis and anæsthesia below sixth segment. Improvement for some weeks, which then ceased. Patient was going down hill. On fifty-sixth day removal of fifth and sixth cervical laminæ; dura appeared slightly distended, but was not opened. Death in eight days. Specimen showed diastasis higher than level of cord lesion, and no pressure.

Case 4.—History of delay in onset of paralysis; no local signs; diagnosis hemorrhage. Symptoms: Total paraplegia and paranæsthesia below sixth cervical segment, with loss of reflexes. Patient first seen forty-eight hours after accident. Removal of fifth and sixth laminæ *nil*. Slight improvement; primary union; renal hemorrhage, which was apparently the direct cause of death. Death fourteenth day (sixteenth from accident).

Case 5.—Young man with symptoms of total crush in mid-dorsal region. Not at first under my care. After seven weeks removal of sixth and seventh dorsal arches. Cord reduced to a cicatricial mass of the thickness of a goose quill. Good recovery of wound, none of function.

Case 6 (under the care of Mr. Jones).—Last dorsal; complete paralysis and anæsthesia. On day of admission extension; slight improvement in sensation during succeeding weeks. After four months and a half removal of last dorsal and first lumbar arches, between which was a thick cicatrix, compressing theca and almost cutting it across. Good healing of wound, but very slight further recovery of sensation.

Case 7 (under the care of Mr. Hardie).—Injury at dorso-lumbar junction. Unrelieved.

Looking at these seven cases collectively, we find that in the first, third, and fifth there was no permanent pressure, and that the operation met no indication whatever. In the second

and fourth cases there was pressure upon the cord, but this was not removed by laminectomy, and even had it been removed by chiselling away the bony prominence on the anterior aspect of the theca, the injury done to the cord was such that the operation would probably have been useless. In the sixth and seventh cases the extent of the dissection does not allow us to say with absolute certainty what the pathological condition really was. In none of the cases did any real benefit result; all those in which the injury was in the cervical region died; all those in which it was below the cervical lived, but did not recover from paralysis. And, lastly, in all those cases in which death did not cut short its progress the wound healed readily.

The published cases, of which there are about 200, show to my mind no better results, if we exclude injuries of the laminæ, hemorrhage, and operations upon the cauda equina. I have, indeed, not satisfied myself that there have been any successes as regards recovery of function, save such as may be attributed to the regeneration of nerve roots only, or to the natural recovery of a cord which was but very slightly injured. This, I am aware, is a broad statement, but an analysis of the recorded cases would occupy far too much of our time. And, further, if it were shown that in one or two instances among the 200 published cases there had been a definite improvement or recovery, I should be inclined to regard such as the sequel of some error in the original diagnosis, rather than to allow a single instance to invalidate a rule based upon such extensive premises.

The only question, therefore, which remains to us is, Are we justified in expecting in future any better results than those which we have met with in the past? There appear but two directions in which we may hope to improve the operation. The first is by operating at an earlier period—immediately after the accident; the second is, by extending our laminectomy to the chiselling away of the bony projection on the anterior aspect of the theca, as is so strongly urged by Urban and Chipault. On the *a priori* grounds which I have already mentioned, I fear, however, that we have little to hope for in either direction, and that we are not yet able to treat with success the common injuries of the spinal cord.

Injuries of the Cauda Equina.—In 1888 I advocated operation in intractable injuries of the cauda equina, mainly upon two grounds, namely:—(1) that we may here expect a regeneration of the nerve roots, the physiological evidence being strongly in favour of such regeneration and not against it, as in the case of the cord; (2) that the absence of spontaneous recovery in such cases in itself indicates the presence of a mechanical obstacle, such as permanent compression by bone, blood clot, or cicatrix;

otherwise we should expect the roots of the cauda equina to recover as other peripheral nerves after severe bruises. In the following year I was able to show that the cases published up to that date confirm this view, and many other cases since recorded have placed it beyond question.

The only point which we need now discuss is that of the most suitable time for operation. We must remember that some cases will recover spontaneously—cases probably in which there has been no extensive tearing of the roots or intervention of tissue between their ends. Hence, then, we must not operate too early. On the other hand, should we delay too long, secondary degenerations will render the ultimate prognosis bad. Between these two difficulties we can hardly dogmatise as to the most suitable time for interference. Personally I have taken as a rough rule that we should operate at the end of six weeks, if there has been little or no recovery, or if recovery has ceased to progress. Other surgeons would, however, limit the period to a month, and the point is one which we are hardly likely to carry further at the present time.

Conclusions.—I may summarise this long discussion in a few words. In compound fractures operate. In fractures of the spinous processes and laminæ, with injury to the cord, we also operate. In simple fractures and dislocations of the bodies of the vertebræ, if there is a reasonable probability that the injury is due to hemorrhage, operation is advisable ; but in all other cases of this nature we cannot hope to do good save where the injury is below the level of the first lumbar vertebra. In such cases, however, laminectomy is an eminently valuable surgical procedure.—*British Medical Journal, June* 23, 1894, *p.* 1346.

ALIMENTARY CANAL.

44.—ON A SERIES OF FORTY-SIX CASES OF REMOVAL OF ONE-HALF OR THE WHOLE OF THE TONGUE, WITH ONE FATAL RESULT.

By H. T. Butlin, F.R.C.S., Surgeon to St. Bartholomew's Hospital.

[After stating that all his operations were performed by Whitehead's method, and that the lingual artery had been tied in those cases in which the disease was situated wholly at the base of the tongue, and in those in which the situation

of diseased or suspected glands was such that the same incision was suitable for ligature of the artery, Mr. Butlin went on to speak of the after-treatment of the cases as follows :]

The after-treatment of operations on the tongue should be chiefly directed to (1) maintaining the wound in the mouth as aseptic as possible ; (2) diminishing the tendency of the wound discharges to pass down the air-passages ; (3) preventing food from passing down the trachea into the lungs.

The first indication is, I believe, better fulfilled by the frequent use of powdered iodoform to the mouth wound than by any other means. As soon as the operation is over, and before the patient is put back to bed, the surface of the fresh wound is covered with powdered iodoform. And, for a week or ten days, iodoform is blown on to the surface of the wound by means of a proper insufflator. For this purpose, Kabierske's insufflator is the best instrument. Powder must not be ladled into the wound with a spoon, but must be blown directly into the cavity, so as just to cover the raw surface. I have never seen any symptoms which could be attributed to iodoform when it has been applied in this manner, and I know of no dressing which maintains the wound in such a healthy condition. In addition, the patient may use a mouth-wash of Condy's fluid or weak carbolic solution to help to cleanse the interior of the mouth of the fluids which collect there.

The second indication requires that the patient's head should be kept low, and that he should lie on one side. I only allow one small pillow, and insist that he should lie well over on the side from which the greatest amount of tongue has been removed. The discharges then have a tendency to sink into the cheek, and are frequently washed out or allowed to run out, and there is thus the least possible inclination of discharges to sink down towards the back of the mouth and larynx.

The feeding of these patients needs very great attention. When only half of the tongue—whether a lateral half or the front half—or two-thirds has been removed, liquids can generally easily be taken on the day following the operation from a feeder with a spout, provided a piece of india-rubber tubing, 3 or 4 inches long, be fixed on to the spout. If the right half of the tongue has been removed, the patient should lie over on the left side during feeding, so that the food is kept as far as possible away from the wound, and passes over the parts which have been least interfered with.

When the whole of the tongue has been removed the difficulty of swallowing is much greater, and many days may elapse before the patient acquires the knack of swallowing liquids without permitting a small quantity to pass down the air-tubes. During the first forty-eight hours these patients are fed through the

rectum with nutrient enemata. At the end of that period I allow the patient to make a first attempt to swallow a little liquid, and water is chosen for the experiment, because the entrance of a little water into the trachea is seldom followed by any serious consequences. Milk and beef-tea are more dangerous; they hang about the air-tubes, are difficult to get rid of, and are very prone to undergo rapid decomposition, and occasion the much-dreaded swallowing pneumonia. If the experiment is successful other liquids may be tried, and the problem of feeding is really overcome. But if there is any difficulty I feed the patient as long as may be necessary through a tube. I believe that no instrument is so good for this purpose as a black bulbous catheter, about No. 9 or 10, attached to a long piece of india-rubber tubing, to the other end of which a small glass funnel is fixed.

The throat is first sprayed with a 3 or 4 per cent. solution of cocaine ; the tubing is clamped with forceps just above the attachment of the catheter, and the funnel and tubing are filled down to the clamp forceps with warm food. The catheter is very gently passed down the pharynx, and hitches at the posterior border of the larynx. The patient is directed to swallow, and as he does so the catheter is easily passed on into the œsophagus. For the moment discomfort is created, and the patient often struggles. He is directed to close his mouth, and no attempt is made to pass the catheter farther down for half a minute or longer. Then it is slowly and gently passed down to a distance of about 11 inches from the teeth. When the annoyance of the presence of the catheter has ceased the clamp is removed, and the food is allowed to run slowly down into the stomach. If there is an inclination to regurgitation or to cough, the descent of liquid is instantly arrested by pressing on the tubing with the finger and thumb, and the nurse lowers the funnel until the dangerous moment has passed. By attention to these details a pint or a pint and a half of liquid may easily be introduced into the stomach without danger. Before removing the catheter the funnel is raised high up, so as to get rid of the contents of the tube ; and, during the actual removal of the catheter the tubing is kept tightly pressed between the finger and thumb in order to prevent the entrance of even a few drops into the larynx. When the feeding is carefully carried out according to these directions, I have known patients so satisfied with it that they have sometimes insisted on being fed through a tube for a much longer period than I have deemed necessary.

Results.—I do not know whether it is to the great care which has been bestowed on these measures, or whether it is due to a long spell of good fortune, that I have removed at least half

the tongue in 46 consecutive cases with one fatal result. The great majority of the operations were, of course, uncomplicated —that is, they were not complicated by the removal of lymphatic glands or of ligature of the lingual artery. But they were performed on persons varying in age from 33 to 75 years, and nineteen of them were performed on patients over 60 years of age. Some of the patients were suffering from organic disease of internal organs, and some of the operations were very severe. They may be thus classified :—

1. Uncomplicated operations, 30—removal of one lateral half of the tongue, 13 ; removal of anterior half or two-thirds, 12 (in several of these the floor of the mouth was at the same time freely dealt with) ; removal of the whole tongue, 5.

These uncomplicated operations were recovered from in almost every instance without any drawback. One old man, aged 72, suffered from retention of urine a few days after the operation, due to enlargement of the prostate, and I was obliged to tap the bladder above the pubes and insert a tube ; but his progress to good recovery was not interrupted by this accident.

Another patient, 46 years old, had an attack of secondary hemorrhage from the right lingual artery eleven days after the removal of the whole tongue. An anæsthetic was administered and the artery tied in the floor of the mouth, after which he made a steady recovery.

In an old man, aged 72, severe bleeding took place on the day of the operation, not from the tongue, but apparently from the back of the throat. I thought he must have died of this ; but after some time the hemorrhage ceased and he slowly recovered, but his recovery was seriously retarded by the loss of blood.

2. Complicated operations, 16—removal of half of the tongue and lymphatic glands, 2 ; removal of the whole of the tongue and lymphatic glands, 1 ; removal of half of the tongue, ligature of the lingual artery in the neck, removal of glands, &c., 10 ; removal of the whole tongue, ligature of the lingual artery in the neck, &c., 3.

These complicated operations were for the most part recovered from with greater difficulty than the uncomplicated operations. Infiltration took place from the wound in the mouth into the deeper wound in several of them, and, in one case in which this occurred, the patient was for two or three weeks seriously ill. Since then I have almost invariably drained the lower wound for the first few days after the operation, a precaution which I had seldom previously taken.

In one of these patients, 51 years old, hemorrhage occurred six days after the operation from a deep cavity which had been made in the floor of the mouth, and recurred during three or

four days. It was ultimately arrested by thoroughly clearing out the wound to the bottom, and plugging it with iodoform gauze. And in a man, aged 49, secondary hemorrhage set in from the wound in the neck nine days after the operation. The hemorrhage was arrested also by plugging, and the patient slowly recovered.

A patient, aged 45 years, was seized with a rigor on his return to the ward immediately after the operation, and for five days in succession his temperature was between 101° and 102°. I was naturally anxious on his account, examined the wound in the mouth carefully day by day, and had the external wound dressed much more frequently than I should otherwise have done. But the most careful examination failed to discover sufficient cause for his condition, and I could not but observe that he did not seem really very ill. On the sixth day he was attacked with acute gout in the great toe (he had been subject to gout), when his temperature fell to normal, and remained there until his discharge from the hospital.

The fatal case was that of a man, aged 71, who suffered from an epithelioma of the anterior portion of the left half of the tongue, and associated enlarged glands. I removed the left half of the tongue, the enlarged glands, and tied the lingual artery in the neck. The operation was performed on September 18, 1891. In the course of a day or two the wound in the neck was foul, apparently from the sinking down of discharges into it from the mouth ; it had not been drained. The patient had rigors and high temperature. He appeared to improve for a while after the condition of the wound had been bettered, but he finally died on October 22, five weeks after the operation. There was no post-mortem examination.

I have thought this series of cases worthy of publication on account of the almost complete absence of general septic poisoning and of septic affection of the lungs. At first I thought that my success was but a part of the general success which at the present time attends these operations, but hospital statistics and tables show that this is not the case, and that the percentage of deaths after such operations as I have put together above is still considerable, and that nearly all the deaths are due either to general or to pulmonary sepsis. Such septic conditions are by no means limited to the larger operations, or to those in which the entire tongue has been removed. But I regard the complicated operations as more dangerous than those which are not complicated by any external wound, and I would rather remove the whole tongue than one-half of the tongue, and at the same time perform a severe operation on the side of the neck.

So far as I can judge, the manner of performing the operation has less to do with the recovery of the patient than the after-treatment. I greatly prefer Whitehead's method of removing

the tongue with scissors to any other method, and have exclusively employed it for six or seven years. But other surgeons still prefer to use the *écraseur*, and remove the whole or large portions of the tongue with it very satisfactorily.

No special care was taken to select the 46 patients on whom these operations were performed. In every case in which it appeared likely that an operation would benefit the individual and prevent recurrence in the mouth it was undertaken, even if he was in a bad state of health. For the sufferings endured by those persons who die of actual cancer of the tongue moved me to extend the operation, even for the sake of palliation, to persons on whom I should not otherwise choose to operate.—*British Medical Journal, August* 14, 1894, *p.* 785.

45.—FIBROUS STRICTURE OF THE ŒSOPHAGUS TREATED BY GASTROTOMY AND RETROGRADE DILATATION.

By Kendal Franks, M.D., Surgeon to the Adelaide Hospital, Dublin.

[In March, 1890, Mr. Franks reported four cases of fibrous stricture of the œsophagus. In the paper from which the following is taken he reports the case of a young lady, aged 24 years, suffering from dysphagia, due to fibrous stricture of the œsophagus resulting from scarlet fever in her seventh year. Mr. Franks describes the operation, and then makes some general remarks upon the recorded cases, as follows :]

Under anæsthesia, on Wednesday, July 6, 1892, at 10.30 a.m., an incision five inches in length was made in the middle line from the ensiform cartilage downward. When the peritoneum was opened the left lobe of the liver appeared, and behind and to the left of this the stomach was found. It was so contracted that it looked at first like the colon, but when it was drawn outward through the wound the absence of white bands and the arrangements of the blood-vessels proved it to be the stomach. An opening about an inch in length was then made into the stomach through its anterior wall, about midway between the curvatures, and at an equal distance from each orifice. The wound all round the opening was well packed with sponges, and the stomach was washed out with warm boric solution. Nothing but mucus and gastric secretions was found in the stomach. I then passed my right index finger into the stomach and my whole hand into the abdomen, and, pushing the anterior wall of the stomach before me, I readily found the cardiac orifice up

behind the left lobe of the liver. When I had passed my finger up the œsophagus as far as it could reach, I just succeeded in reaching the stricture and exploring it, but the length of my finger would not permit me to do more. As, from the measurements I had taken, I had anticipated this difficulty, I had an Otis dilating urethrotome in readiness, with the blade removed. I now passed this instrument up along my finger through the cardiac orifice, and, guided by my finger, it readily passed into the stricture, which it fitted fairly accurately. The dilator was then screwed up to its full limit of expansion in an antero-posterior direction, and was then withdrawn fully dilated. A flattened œsophagal bougie was then passed down the œsophagus from the mouth, but it impinged on the stricture and refused to pass farther. The dilatator closed was again passed upward, and again fully expanded, this time in a lateral direction—that is, at right angles to the former dilatation. It was again withdrawn fully open. The bougie passed from the mouth now emerged into the stomach without the smallest difficulty. I drew its extremity out through the abdominal wound and bored a hole through it. Through this hole I passed a stout piece of silk and knotted it firmly. I then withdrew the bougie back along the same road it had already traversed, carrying the silk with it. I now had a strong silk thread passing from the mouth through the œsophagus, the stomach, and out through the abdominal wound. A plug of gauze was now made about the size of the finger. To one end of this the lower end of the silk was fastened securely. I then fastened another piece of silk to the other end of the plug, and by means of these silk threads I was able to draw the plug upward and downward through the stricture, which it traversed with comparative ease. Finally, I allowed the plug to remain in the stricture, and then I cut short the lower end in the stomach, leaving the upper line of silk hanging from the mouth.

The wound in the stomach was now closed by a continuous suture of fine silk, uniting the mucous coat, and a second continuous Lembert suture, which united the peritoneal coat. The stomach was then allowed to fall back into the abdomen. When the "toilet" of the peritoneum was completed the abdomen was closed by two rows of sutures, the first uniting the peritoneum, the second embracing all the other layers, including the skin. The dressings were applied, and the patient, who bore the operation very well, was removed to bed, and $\frac{1}{6}$ grain of morphia with $\frac{1}{120}$ grain of atropia was administered hypodermically. She was ordered peptonized nutrient enemata every four hours. At 6 p.m. I withdrew the plug. She was allowed to suck a little ice, but nothing else was given by the mouth until the fourth day, when four ounces of milk and two

drachms of Denayer's peptonate of meat were given alternately every fourth hour. The enemata were discontinued on the fifth day, as she was then able to swallow her nourishment well. On the ninth day she was allowed fish, and bread and milk, and chicken on the tenth day. On the thirteenth day I passed a bougie with ease into the stomach ; but that night she suffered some pain, and the next day there was a slight rise of temperature, which, however, came down the following day ; but at no time during her convalescence did the temperature exceed 100·2° F.

On the twenty-first day she walked up to my house to see me. She was then able to eat good solid meals without the smallest difficulty or pain.

For over two months I made no further attempts to pass a bougie. On September 28 I found the patient very much improved in health and condition. She now weighed six stones thirteen pounds as against five stones seven pounds on June 30 —that is, a gain of nearly a stone and a half.

I also found that I could pass a bougie No. 27, French gauge, with ease. On September 30 I passed a bougie measuring $1\frac{7}{16}$ inches in circumference. On October 26 I began electrolysis, and repeated it at intervals varying from a fortnight to a month until January 25, when my largest electrode, measuring two inches in circumference, passed with ease. Since then I have passed, at intervals of from one to two months, large bougies measuring $2\frac{1}{8}$ inches in circumference, which pass without any difficulty or pain. She enjoys excellent health.

The idea of attacking an impermeable stricture of the œsophagus, of a benign character, from below originated with Professor Loreta, of Bologna, and his first operation was performed in October, 1883.

As the case I have recorded is, as far as I am aware, the first of the kind performed in the United Kingdom, it may not be uninteresting if I refer shortly to the history of the operation, and point out the various modifications which have found favour with operators. Including the case I have recorded, the operation has been done 21 times. Of these 21 cases, the result is known in 20. These all recovered.

On examining the record of these cases, it will be observed that surgeons have employed one of two methods in carrying out the treatment of œsophageal strictures by dilatation from below. The whole process may be completed at once, or it may be divided into two stages.

As originally proposed and carried out by Loreta, as soon as the stomach has been exposed it is opened, the cardiac orifice is sought for, a dilator, guided by the finger, is passed through the stomach into the œsophagus and is insinuated into the stricture,

and the stricture is at once forcibly dilated. That sufficient has been done is tested by the passage of a bougie from the mouth downward. The stomach wound is then immediately closed, the abdominal wound sutured, and the operation completed.

The other method consists in at first performing gastrostomy —that is, in fixing a piece of the stomach into a wound made in the left epigastric region. The stomach is not usually opened for two or more days, and nothing further is done until a gastric fistula has become firmly established. When this is attained, the stricture is attacked through the fistula, generally assisted by the passage of various devices from above. When dilatation has sufficiently advanced to permit of the further treatment being carried out from above, the gastric fistula is allowed to heal, or is closed by a plastic operation.

Each of these methods has its own advantages. The former, or Loreta's method, completes the operation at once, and nothing remains to be done except to secure the patient against the risks of recontraction by the occasional passage of a bougie through the mouth. The recovery is rapid: in Loreta's first two cases, 18 and 20 days respectively; in my own case, 21 days. Again, the immediate method enables the surgeon to make a digital examination of the stricture, even if it be situated as high up as three inches above the cardiac orifice. It is impossible to explore even the cardiac orifice with the finger through a gastric fistula, unless the patient be a child, and the fistulous opening in the stomach be large enough to admit the finger. In a case recently, in which I had the opportunity and privilege of assisting Mr. Myles, we found it impossible to pass the finger into the lower end of the œsophagus, except after the introduction of the entire hand into the cavity of the stomach. We then discovered the stricture about three inches from the cardia; but, unfortunately, it proved to be malignant, and dilatation was impossible.

The second method, or the operation *à deux temps*, may perhaps be shown to have some slight advantage on the score of safety, but this I very much doubt.

There is, however, one class of cases in which Loreta's method would not be admissible, and in which the establishment of a gastric fistula becomes a matter of necessity. In cases of extensive injury to the œsophagus, caused by swallowing a strong corrosive, such as sulphuric acid or caustic potash, where the greater portion of the whole length of the œsophagus is in a strictured condition, it would be manifestly impossible to employ immediate dilatation for its relief. A prolonged system of gradual dilatation with bougies can then alone be relied on, and this can be carried out more easily and more surely from below than from above. In such cases the

operation *à deux temps* has an established and unassailable position in surgery.

In examining the cases we find that the operation *à deux temps*, when a gastric fistula is formed as a preliminary, has been performed thirteen times, while Loreta's method has been carried out eight times. It is evident, however, that the principle which guided the operators in the selection of the method had nothing to do with the nature of the stricture. It appears to be a question of nationality. I believe Loreta's method will come more and more into use, for the reason that, with proper precautions, the risk of opening the stomach at once can be reduced practically to nil, whilst if we form a fistula we must forego certain other very decided advantages to the patient.

In advocating gastrotomy as a method of dealing with œsophageal stricture it should be distinctly understood that we do not suggest it as an alternative to the ordinary method of dealing with these strictures from above, such as dilatation, internal or external œsophagotomy, or electrolysis. As long as bougies passed through the mouth can be made to traverse an œsophageal stricture—that is, as long as the ordinary methods of treatment from above give any hope of a successful issue—so long the question of gastrotomy does not arise. It is only when the stricture is practically impermeable from above that Loreta's method, or one of its modifications, becomes a necessity to save the patient from starvation, or from the short-lived misery of a permanent fistula in the stomach, through which he must be fed until nature requires sustenance no longer. It is noteworthy how frequently a fistula, which seems to be impervious when tested by bougies passed through the mouth, admits with comparative ease the bougie passed upward from the stomach. In the case I have reported it was only after prolonged efforts and after many trials that I succeeded in getting a bougie through the stricture from above, and when it was once withdrawn I could not get another one in, and yet at the operation an Otis dilator passed through the stricture almost at the first attempt. Other operators have recorded the same experience; and the reason for it is easily understood. From the frequent efforts to take food, continued for months, it may be for years, the œsophagus above the stricture has become so greatly dilated as almost to form a large pouch. Somewhere at the bottom of this pouch there exists a small opening through which the liquid portion of the food can trickle.

The wonder, then, is that a bougie, probing about the floor of this well, strikes as frequently as it does the aperture and passes through it. This aperture may be so small, or situated at one side in such a position that it cannot be found. The

condition of the œsophagus at the other side of the stricture is quite different. Here there is no such pouch. On the contrary, the œsophagus is generally contracted by disuse, and forms more or less of a funnel, so that a bougie passed from below is, as it were, guided to the stricture; and thus it happens that such an obstruction, which was quite intractable to treatment from above, can, with comparative ease, be dealt with from below.—*Annals of Surgery, April*, 1894, *p.* 387.

46.—A CASE OF PERFORATION OF A CHRONIC ULCER OF THE DUODENUM SUCCESSFULLY TREATED BY EXCISION. DEATH TWO MONTHS LATER FROM ACUTE INTESTINAL OBSTRUCTION BY A BAND.

By H. Percy Dean, M.S., F.R.C.S., Assistant Surgeon to the London Hospital.

E. F., a married woman, aged 27 years, was admitted into one of the surgical wards of the London Hospital on the evening of February 17, 1894. She was seen by me about 1.30 a.m. on the following morning, that is, a few hours after her admission, and I found her in the following condition:—Intense pain was complained of over the whole of the abdomen, perhaps slightly more marked in the epigastric regions. The patient felt very ill, and her expression was exceedingly anxious. Vomiting occurred every few minutes, and much exhausted the patient. The pulse was 120, feeble and regular. The respirations were rapid and irregular, both in force and rhythm. The tongue was slightly furred, and very dry. There was uniform tenderness over the whole abdomen, the distension was moderate in degree, and the resonance of the percussion note was markedly increased. The temperature was 100·6°.

On questioning the patient it was found that for about a fortnight she had suffered from pain in the chest and pit of stomach, and that her doctor had been treating her for indigestion. The patient had been sick several times during the week previous to her admission, and her bowels had not been opened for seven or eight days. About twenty-four hours before admission to the hospital the patient suddenly became much worse, feeling a severe pain in the pit of the stomach and a sensation of intense weakness. This was soon followed by vomiting, repeated at frequent intervals.

It seemed to me pretty evident that the patient was suffering from acute general peritonitis. The possibility of perforation of the stomach or duodenum was considered, but on the whole I was rather inclined to think that it was a case of mechanical obstruction with general peritonitis. It was decided to operate at once. The patient was taken to the operating theatre, anæsthetised with chloroform, and an incision about three inches long was made immediately below the umbilicus. On opening the peritoneal cavity a quantity of purulent fluid escaped, and coils of intestine, somewhat distended, intensely congested, and covered in places with flakes of lymph, protruded through the wound. No evidence of any mechanical obstruction could be obtained, so I increased the incision upwards to the ensiform cartilage, and in a few minutes I found some flakes of lymph in the region of the gall-bladder. In the centre of one of these flakes I noticed some gas bubbles, forming a kind of froth. On inserting a probe into the froth I found that it passed into a cavity, which on further examination was found to be the duodenum, the perforation being situated on the anterior aspect, about $\frac{3}{4}$ inch below the pylorus. Around the perforation a distinct induration could be felt. By means of scissors this indurated area was excised. The portion removed was elliptical in shape, measuring $1\frac{1}{4}$ inches in its long axis, which was parallel with the transverse axis of the gut. The portion excised was found to include the ulcer and a margin of healthy mucous membrane. In the centre of the ulcer was a perforation about 2 mm. in diameter. The floor of the ulcer was white, and the edge of the ulcer was bounded by apparently healthy mucous membrane. The elliptical opening thus made into the duodenum was sewn up by silk sutures according to Lembert's method. The peritoneal cavity was washed out with warm weak boracic lotion, well sponged, and the wound sewn up by stitches passing through the whole thickness of the abdominal wound. The operation lasted fifty minutes.

After the operation the patient was allowed nothing by the mouth. She was fed solely *per rectum* by nutrient enemata and suppositories for seventeen days. To allay thirst, 2 ounces of warm water were occasionally injected into the rectum. The patient rapidly improved, was given liquid food by the mouth on the eighteenth day, and solid food on the twenty-eighth day. The abdominal wound healed by first intention, and on March 19, that is, thirty days after the operation, the patient was walking about the ward, going into the garden, and eating ordinary food.

It was decided to send the patient into the country, and so she was kept in the hospital until a vacancy in a convalescent home occurred. Three days before the date on which it was arranged that she should leave the hospital, that is, on the evening of

April 13, the patient complained of some pain in the abdomen, and was sick. The pain continued on Saturday morning, and she was sick again. I saw the patient in the afternoon of Saturday, and found her complaining of a colicky pain in the abdomen. Her general condition was good. I ordered an enema to be given, and all food by the mouth to be stopped. Having arranged to leave London on that day for a short holiday, I asked the house surgeon to call in one of my colleagues if the patient's condition did not rapidly improve. No result followed the enema, so the house-surgeon ordered doses of mag. sulph. (℥ j) to be given every hour. Four of these doses were given, and on Sunday morning the patient was so much worse that Mr. Eve was asked to see the patient. Mr. Eve considered that she was suffering from intestinal obstruction, probably caused by a band, and proceeded to perform abdominal section. Ether was administered, and an incision was made through that part of the scar of the former incision that was below the umbilicus. The great omentum was found adherent to the wound, and at the lower part of the scar a band could be traced to a coil of intestine, and this band had caused a kink in the gut sufficient to produce complete obstruction. The band was attached to the gut about six inches above its entrance into the cæcum. The coils of intestine on the proximal side of the band were greatly distended and very congested. On the distal side of the band the intestine was collapsed. The band was removed, and immediately afterwards the collapsed coils became distended, showing that the obstruction had been relieved. The peritoneal cavity, which contained some blood-stained fluid, was washed out with warm boracic lotion, and the wound sewn up by silkworm-gut stitches. The operation lasted forty-five minutes.

The patient recovered to a slight extent from the shock of the operation, but never thoroughly rallied. She gradually became weaker, and died about thirty-six hours after the operation.

Post-mortem Examination.—On opening the abdomen a considerable amount of lymph was found upon the intestines, and the peritoneal cavity contained a quantity of turbid fluid. About three inches above the attachment of the band to the small intestine was a perforation from which the intestinal contents escaped. A little higher up was another perforation. On opening the intestine it was found that each perforation was in the centre of a small ulcer. The ulcers were evidently of very acute and recent formation, as the whole thickness of the intestinal wall at these spots was necrosed. There were several other necrotic patches within eighteen inches of the obstructed point. For about half-an-inch from the pylorus the duodenum was thinner than normal, and the peritoneum over it was puckered. The duodenum was quite healthy, and presented no traces of past or recent ulceration.

Remarks.—This case is of interest from two distinct points of view. First, the successful treatment of the duodenal ulcer; secondly, the unfortunate sequela of strangulation by a band. More especially is the case of interest from the first point of view, because, so far as I have been able to ascertain, no successful result of excision of a perforated duodenal ulcer has yet been recorded. Not long ago Mr. Lockwood read a paper before this Society on two cases of perforation of duodenal ulcers, and in each of which he failed to find the perforation. In his cases the perforation was on the posterior wall of the duodenum, and almost impossible to expose. In my case, on the other hand, the perforation was situated in the most convenient spot that could be desired—namely, on the anterior aspect, and the difficulties to be overcome in excising the ulcer and suturing the duodenum were but slight.

As regards the unfortunate result, it is impossible, so far as I can see, to prevent the formation of a band after abdominal section for acute peritonitis, especially acute purulent peritonitis. In these purulent cases, at any rate, I do not think that stitching up the peritoneum by itself before suture of the abdominal wall, could lessen in any way the tendency to the formation of adhesions between the inflamed, lymph-covered intestines and the abdominal wall.

One is rather inclined to conclude with this statement—that if after abdominal section an attack of acute abdominal pain and intestinal obstruction supervene, an exploratory operation should be performed as soon as possible, even if the general condition of the patient would, under ordinary circumstances, scarcely be considered grave enough for immediate surgical interference.

I wish to express my thanks and indebtedness to my colleague, Mr. Eve, for his kindness in taking charge of the patient during my absence.—*British Medical Journal, May* 12, 1894, *p.* 1014.

47.—ON THE SURGERY OF THE GALL BLADDER AND BILE DUCTS.

By A. W. Mayo Robson, F.R.C.S., Surgeon to the Leeds General Infirmary.

[Mr. Robson's table of 78 cases, on which the following observations are based, is not reproduced here :]

Among the prominent symptoms and complications of cholelithiasis which I have had experience of are :

1. Spasms or biliary colic without jaundice, the attacks being repeated at longer or shorter intervals, coming on without apparent cause, usually starting in the epigastrium or under

the right ribs, and radiating to the right scapular region or to the shoulder, and often ending in vomiting, which usually gives relief.

2. Collapse, due to the intensity of the pain, which I have known to cause death without any other complication.

3. Spasms followed by evanescent icterus.

4. Pain followed by persistent jaundice and enlargement of the liver, which may give rise to the suspicion of malignant disease, but which may usually be diagnosed from cancer by the presence of

5. Attacks of pain accompanied by a feeling of chilliness or a rigor, and followed by increased temperature and then by profuse perspiration, the whole attack resembling one of ague.

6. Distension (hydrops) of the gall bladder without jaundice, ordinarily due to impaction of gall stones in the cystic duct.

7. If accompanied by persistent jaundice, distension of the gall bladder raises a suspicion of malignant disease, either of the liver or bile ducts or of the head of the pancreas.

8. Ileus due to atony of the bowel, apparently dependent on the pain producing a profound impression on the nerves of the abdomen, leading to enormous distension and to the symptoms and appearance of acute intestinal obstruction.

9. Acute intestinal obstruction dependent on : (*a*) Paralysis of gut due to local peritonitis in the neighbourhood of the gall bladder. (*b*) Volvulus of small intestine. (*c*) Impaction of large gall stone in some part of the intestine after ulcerating its way from the bile channels into the bowel.

10. General hemorrhages, the result of long continued jaundice, either dependent on gall stones alone or on cholelithiasis associated with malignant disease.

11. Persistent vomiting, with such serious digestive disturbances as to threaten death from exhaustion.

12. Localised peritonitis producing adhesions, which may then become a source of trouble even after the gall stones have all been got rid of. I believe that nearly every attack of biliary colic is accompanied by adhesive peritonitis, as my experience is that in all cases where there have been characteristic seizures adhesions are found.

13. Dilatations of stomach dependent on adhesions around the pylorus.

14. Ulceration of the bile passages establishing a fistula between them and the intestine.

15. Abscess of the liver.

16. Localised peritoneal abscess.

17. Abscess in the abdominal walls.

18. Fistula at the umbilicus or elsewhere on the surface of the abdomen.

19. Empyema of gall bladder.
20. Suppurative choleangitis.
21. Septicæmia or pyæmia.
22. Gangrene of the gall bladder.
23. Perforative peritonitis due to ulceration or to rupture of the gall bladder or ducts.
24. Extravasation of bile into the general peritoneal cavity.
25. Pyelitis of the right side.
26. Cancer of the gall bladder or of the ducts.
27. Subphrenic abscess.
28. Empyema on the right side.
29. Pneumonia of the lower lobe on the right side.
30. Chronic invalidism and inability to perform any of the ordinary business or social duties.

Where medical means have failed, surgery holds out very good hope of success in nearly every complication of cholelithiasis, if the patient be not too much exhausted to permit of any major operation.

Cases complicated with malignant disease, however, are decidedly unfavourable ones for operation. First, because the subjects of cancer are not only as a rule cachectic and worn down by disease before the surgeon is called in, and therefore unfitted to bear the shock of any operation; but, secondly, because such patients are particularly prone to hemorrhage at the time of operation, or subsequently, which may be uncontrollable.

I would here take the opportunity of correcting an observation made several years ago in a paper read before the Clinical Society of London, which I have since found to need qualification. I then remarked that there was more risk in operating on profoundly jaundiced patients, on account of hemorrhage. While I still think there is greater risk in operating on such cases, I have found by ample experience that the danger is not simply from the presence of jaundice, but from the presence of jaundice combined with malignant disease; and I feel that I cannot emphasise too strongly the fact that operations undertaken on patients with malignant disease of the head of the pancreas, of the bile ducts, or of the liver, if combined with deep jaundice, are attended with very great risk; and that in such cases the great risk is not compensated for by the slight respite which may be given by establishing a biliary fistula, as recommended by some able surgeons.

It may, however, be worth remarking that, in order to avert the danger of hemorrhage in jaundiced patients, I have found the administration of chloride of calcium for a few days before operation to make the blood more plastic and to lessen the tendency to bleeding both at the time of operation and subsequently.

After operation the drug may be continued either by the mouth or by nutrient enemata for some time with advantage. In jaundiced cases I prefer to ligature all bleeding parts, rather than to trust to pressure forceps for hæmostasis. The subject of diagnosis is too important to pass over in a few words, and too long to discuss in a short paper, but I would remark that there are two main points for consideration :— First, are gall stones present? Secondly, is there malignant disease? A careful consideration of the previous history will usually enable the former question to be answered, and especially the history of attacks of "spasms" preceding other complications. The latter question cannot, I believe, be always positively answered, but as a rule the preliminary history of "spasms" of pain preceding the jaundice, and of intermittent pyrexia, with the absence of enlargement of the gall bladder, will point to cholelithiasis.

It may be worth noticing that in all cases of malignant disease with jaundice on which I have operated the gall bladder formed a perceptible tumour, whereas when the jaundice was dependent on gall stones there was no marked tumour present.

Another diagnostic point worth remarking is that in cholelithiasis there is usually tenderness on pressure over some point between the eighth or ninth costal cartilage and the umbilicus. In three cases the pain in the so-called "spasms" has been referred to the left side, thence radiating to the left scapular region, and in such cases I have found the pylorus adherent to the gall bladder or cystic duct. The so-called diagnostic operations of sounding for gall stones and aspiration of a distended gall bladder I believe to be futile and dangerous, and much better replaced by a small exploratory incision, when treatment can at the same time be carried out if required.

Treatment.—After medical treatment has been fairly tried and failed, I think most surgeons are agreed that surgical measures should be resorted to. While cholecystotomy is generally recognised as the operation to be aimed at in the treatment of affections of the gall bladder or bile ducts, especially in cholelithiasis, it is often impossible to say what operation will have to be done until the abdomen is opened. The indications for operating would seem to me to be as follows :—

1. In frequently recurring biliary colic without jaundice, with or without enlargement of the gall bladder.
2. In enlargement of the gall bladder without jaundice, even if unaccompanied by great pain.
3. In persistent jaundice ushered in by pain, and where recurring pains, with or without ague-like paroxysms, render it probable that the cause is gall stones in the common duct.

4. In empyema of the gall bladder.
5. In peritonitis, starting in the right hypochondrium.
6. In abscess around the gall bladder or bile ducts, whether in the liver or under or over it.
7. In some cases where, although the gall stones may have passed, adhesions remain and prove a source of pain and illness.
8. In fistula, mucous or biliary.
9. In certain cases of jaundice, with distended gall bladder dependent on some obstruction in the common duct; but in such cases the increased risk must be borne in mind, as malignant disease will probably be the cause of the obstruction.

Supposing the case to prove a suitable one for cholecystotomy, and the gall bladder and ducts can be cleared without great difficulty by means of forceps within and the fingers outside the ducts, the opening in the gall bladder can be sutured to the aponeurosis, which I think preferable to skin fixation, and drained, which I infinitely prefer to immediate suture of the opening.

But if the ducts cannot be cleared, what may be done?

(*a*) Cholelithotrity or crushing of the gall stones *in situ* by means of the finger and thumb, or by padded forceps, an operation which I have successfully performed on numerous occasions, and which I prefer to the more formidable procedure of incising the ducts or of fixing the gall bladder to the intestine.

(*b*) Choledochotomy, or incising the duct, whether cystic or common, the incision being afterwards sutured, not an easy matter on account of the depth of the parts to be coapted, but which I have found to be best effected by means of a rectangular cleft palate needle. A drainage-tube should always be inserted into the right kidney pouch in these cases.

(*c*) Cholecystenterostomy, or the making of an anastomosis between the gall bladder and intestine, easily effected if the gall bladder be dilated, with difficulty performed if the gall bladder be contracted, as is often the case. I have performed this operation three times, with immediate success and recovery in all, and with complete and permanent relief in two. The method I prefer is that by means of my decalcified bone bobbin, which enables the operator to accomplish the anastomosis rapidly, as only two sutures have to be employed.

(*d*) The daily injection of fluids after an interval of some days, through the cholecystotomy opening, which will either soften or dissolve the concretions. For this I have used hot water, a solution of taurocholate of soda, ether, and ether and turpentine, with more or less success; but I think that Dr. Brockbank's suggestion to use an injection of olive oil or a 5 per cent. solution of sapo animalis or oleic acid will be worth more fully trying.

(*e*) Cholecystectomy may be required as a secondary operation in cases of stricture of the cystic duct, the common duct being free. On three occasions in which I have excised the gall bladder, it has been for mucous fistula depending on stricture of the cystic duct following on gall stones, and all the cases were completely and permanently relieved.

Cholecystectomy can seldom be advisable or necessary as a primary operation in gall stones, and extremely rarely possible in malignant disease. In cholecystotomy, where it is impossible to bring the margins of the incised gall bladder into the wound, and where the parietal peritoneum cannot be tucked down to meet the edges of the opening, I have made a tube of the omentum, but in such cases no hesitation need be felt in trusting to a drainage-tube, as the peritoneal cavity soon becomes occluded around the drain, and there is little or no tendency to the passage of bile among the viscera, so that a suprapubic drainage opening is quite unnecessary. With very few exceptions I have found a vertical incision along the upper part of the right linea semilunaris to give ample room, but if required I have not hesitated to get further room by a transverse cut in addition.

Suture of peritoneum, aponeurosis, and skin by separate stitches effectually guards against ventral hernia, if the patient be kept recumbent for from 21 to 28 days, and if a firm oval pad be worn under a belt for a few months subsequently.

In all cases strict antiseptic precautions have been observed, and the abdomen has been left as clean and dry as possible.

In conclusion, I would emphasise that with due skill and adequate care operations on the gall bladder and bile ducts are among the most successful of the major operations, but as many of them are extremely difficult, and as it is impossible to say beforehand whether any case may not prove so, I think such surgical work should be undertaken only by those who have had experience in abdominal surgery, and who have witnessed or helped in several operations of this kind. As soon as this is the case we shall cease to witness the varying rates of mortality in the hands of different operators, of from 50 to almost 0 per cent., and shall probably find that, excluding cases of malignant disease associated with jaundice, the all-round mortality will not exceed 5 per cent. I hope the time is not far distant when it will be fully recognised that though cholelithiasis, so far as its causes and its early treatment are concerned, is distinctly a condition for medical treatment, it is both unjust to the patient and unfair to the profession to continue medical treatment until serious complications supervene, or the patient is almost, if not quite, past relief, before the aid of surgery is invoked.—*British Medical Journal*, *April* 28, 1894, *p.* 901.

48.—A NEW METHOD OF OPERATING IN APPENDICITIS.

By Charles McBurney, M.D., Surgeon to the Roosevelt Hospital, New York.

Of late years I have made almost all incisions for appendicitis about as follows: The incision in the skin is an oblique one about four inches long. It crosses a line drawn from the anterior iliac spine to the umbilicus nearly at right angles about one inch from the iliac spine, and is so situated that its upper third lies above that line.

The incision of the aponeurosis of the external oblique is a little shorter, and practically merely separates the fibres of that muscle and its tendon without cutting them. The section of the internal oblique and traversalis muscles follows, cutting the muscular fibres nearly at right angles to their course, and is completed only at the central half at first. This deeper incision can be readily lengthened if, after cutting the fascia transversalis and peritoneum, the character of the lesion seems to call for more space.

In regard to the exact length of the incision, I would say that it should be adjusted to the necessities of the case, just as incisions in other parts of the body, made for various purposes, should be adjusted. Incisions should be long enough to allow complete and safe work to be done, and it is most unscientific and harmful to encourage those of limited experience to believe that a special measure of good goes with a special length of incision. If the parts severed in the making of a wound are properly adjusted, and the wound properly treated, repair will be just as rapid and complete whether the wound be five inches long or three inches long, while, on the other hand, no good surgeon will ever unnecessarily divide tissue simply because he can again obtain repair.

When hernia occurs after an operation for appendicitis, it is due to the imperfect repair following the complete section of a number of superimposed tissues, and it has sometimes followed, both in cases where the incision was made just at the linea semilunaris, and also when made through the muscular wall outside of this line. In abscess cases where a free incision and also open treatment of the wound for drainage are essential to safety, hernia of greater or less dimensions is not unfrequently seen within a year after operation.

By the term hernia, used in this connection, is meant the partial eversion of the cicatricial tissue caused by intra-abdominal pressure at one or more points in the line of the wound where repair of the deeper tissues incised has been imperfect. Even

after operation for the removal of the appendix in the interval between attacks, and when the wound may be completely or nearly completely closed at once, small herniæ, of the same variety, are not unknown. The recurrence of hernia is due, first, to the more or less constant intra-abdominal pressure, and, secondarily, to the difficulty in obtaining perfect repair in the parts divided. The peritoneum is often very perfectly sutured, the transversalis fascia usually very imperfectly. The external oblique aponeurosis is usually, when its suture is permissible at all, very completely repaired. The greatest defect in repair is due to the section at right angles, either of the muscular fibres of the internal oblique and transversalis, or of the tendinous fibres forming the conjoined tendon of these muscles at the edge of the rectus. In either case, the retraction of these muscular fibres, aided by intra-abdominal pressure, tends constantly to separate the edges of the deeper part of the wound, thus permitting at first slight, afterwards increasing, eversion of peritoneum, and the formation of an incomplete hernial pouch. Such cases require the use of an abdominal belt or other apparatus to give sufficient support to the belly wall. The consideration of this defective result in some cases has led me to attempt a different method of entering the cavity in operations for the removal of the appendix in non-suppurative cases.

The skin incision should be made as already described. The section of the external oblique muscle and aponeurosis should correspond, great care being taken to separate these tissues in the same line, not cutting any fibres across. This is easily accomplished.

When the edges of the wound in the external oblique are now strongly pulled apart with retractors, a considerable expanse of the internal oblique muscle is seen, the fibres of which cross somewhat obliquely the opening formed by these retractors. With a blunt instrument, such as the handle of a knife or closed scissors, the fibres of the internal oblique and transversalis muscles can now be separated, without cutting more than an occasional fibre, in a line parallel with their course —that is, nearly at right angles to the incision in the external oblique aponeurosis. Blunt retractors should now be introduced into this in turn and the edges separated.

The transversalis fascia is thus well exposed, and is then divided in the same line. Last of all the section of the peritoneum is made.

Two sets of retractors must be in use, one holding open the superficial wound from side to side, the other separating the edges of the deeper wound from above downward. A considerable opening is thus formed, through which, in suitable

cases, the caput coli can be easily handled, and the appendix removed. The appendix having been taken away, the wound in the peritoneum, which is transverse, is then closed by suture. The similar wound in the fascia transversalis is also sutured. The fibres of the internal oblique and transversalis muscles fall together as soon as the retractors are withdrawn, and with a couple of fine catgut stitches the closure can be made more complete. The wound in the external oblique aponeurosis is sewed with catgut from end to end. When the operation is completed it will be seen that the gridiron-like arrangement of the muscular and tendinous fibres, to which the abdominal wall largely owes its strength, is restored almost as completely as if no operation had been done. In performing this operation I have noticed several advantages.

In the first place, muscular and tendinous fibres are separated, but not divided, so that muscular action cannot tend to draw the edges of the wound apart, but rather to actively approximate them. Excepting during the incision of the skin, almost no bleeding occurs. The fascia transversalis not being drawn away by the retraction of the deepest layer of muscular fibres, this fascia is easily completely sutured, and thus greater strength of repair is assured. No muscular fibres or larger nerves having been divided, pain after operation is almost absent. The operation requires rather more time than the usual one, and a larger number of assistants is needed, for four retractors are in use during part of the time. The opening into the peritoneal cavity is not large, but may be made larger if necessary, by continuing the separation of the fibres of the internal oblique and transversalis, and dividing the conjoined aponeurosis in the same line with scissors. In the opposite direction the separation of muscular fibres may be carried as far as the crest of the ilium.

I have now done this operation on four patients, all cases of recurrent appendicitis operated upon in the interval between attacks. The first operation took place at the Roosevelt Hospital on December 18, 1893. Sufficient time has not elapsed to justify me in presenting the final results as positively an improvement upon those obtained by older methods. I shall expect, however, in these cases, a much more perfect result as regards the strength of the abdominal wall than is usually observed.

I present the method now, hoping that others may be induced to give it a trial.

This operation does not appear to be suitable for cases accompanied by suppuration about the appendix, which require to be treated by extensive packing with gauze, nor in cases non-suppurative which require during operation a large intra-abdominal dissection.

It is not an easy operation, and should not be attempted by those who are unfamiliar with operations upon the appendix, and I again call attention to the fact that in performing it two extra assistants will be occupied part of the time with retractors. —*Annals of Surgery, July*, 1894, *p.* 39.

49.—THE TECHNIQUE OF INTESTINAL APPROXIMATION BY MEANS OF THE ANASTOMOSIS BUTTON.

By J. B. Murphy, M.D., Professor of Surgery in Chicago College of Physicians and Surgeons.

The following is the technique of insertion of the button:—

(1) *Cholecystenterostomy.*—An incision is made from the edge of the ribs, two inches to the right of and parallel to the median line, extending downwards three inches. The gall-bladder and duodenum are drawn into the wound; a needle with fifteen inches of silk is inserted in the duodenum directly opposite the mesentery, and at a point near the head of the pancreas;

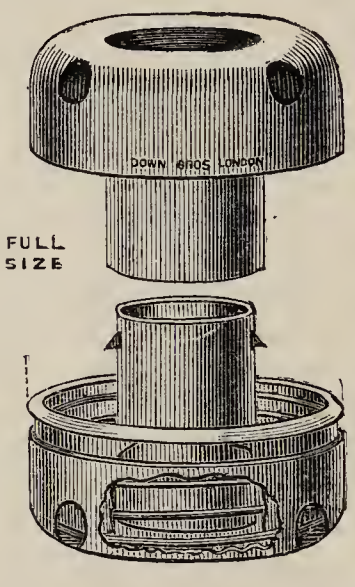

Fig. 1.—Anastomosis button.

a stitch is taken through the entire wall of the bowel, one-third the length of the incision to be made; the needle is again inserted one-third the length of the incision, from its outlet, in a line with the first, and embracing the same amount of tissue as the first. A loop three inches long is held here, and the needle is inserted in a similar manner, making two stitches parallel to the first in the reverse direction, and one-fourth

of an inch from it, coming out at a point near the original insertion of the needle. This forms the running thread, which when tightened, draws the incised edge of the bowel within the cup of the button. A similar running thread is inserted in the gall-bladder. An incision is now made in the intestine two-thirds the length of the diameter of the button to be used; avoid cutting the running thread when making the incision. The button is slipped in, and the running thread is tied firmly

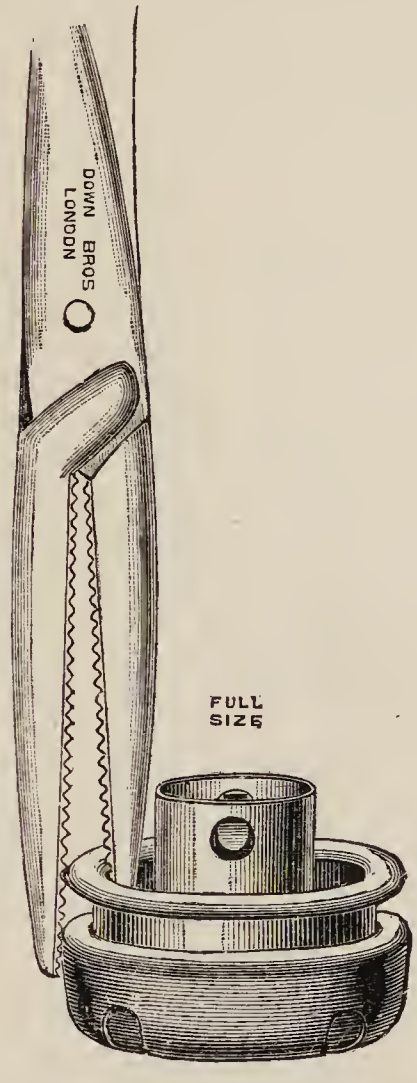

FIG. 2.—Showing method of holding elastic cup for insertion.

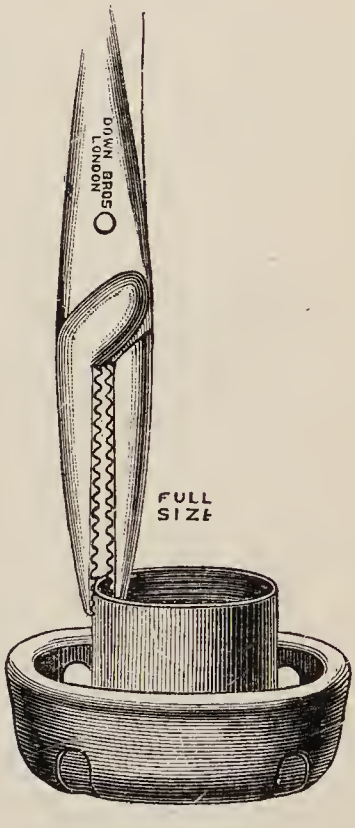

FIG. 3.—Method of holding female half of button for insertion.

around the central cylinder; an assistant holds the button in position with the hæmostatic forceps. An incision is now made in the gall-bladder, the same length as the one in the intestine, between the rows of suture. The gall-stones and fluid contents of the gall-bladder are removed, the button is inserted, and the running thread is tied. The forceps are then removed; the button is held between the fingers and slowly pressed together (Fig. 4). Note that the edge of the wound comes entirely

within the clasp of the button before it is completely closed. A sufficient degree of pressure must be used to bring the serous surfaces of the gall-bladder and intestines firmly in contact and compress the tissues. The elastic pressure of the spring cup of the button produces a pressure atrophy of the tissues embraced by it and leaves an opening larger than the button. When the button is liberated it passes on through the bowel.

(2) *Pylorectomy.*—Having drawn the pylorus into the abdominal wound, ligate the greater and lesser omenta and cut them off; then make a circular incision on a grooved

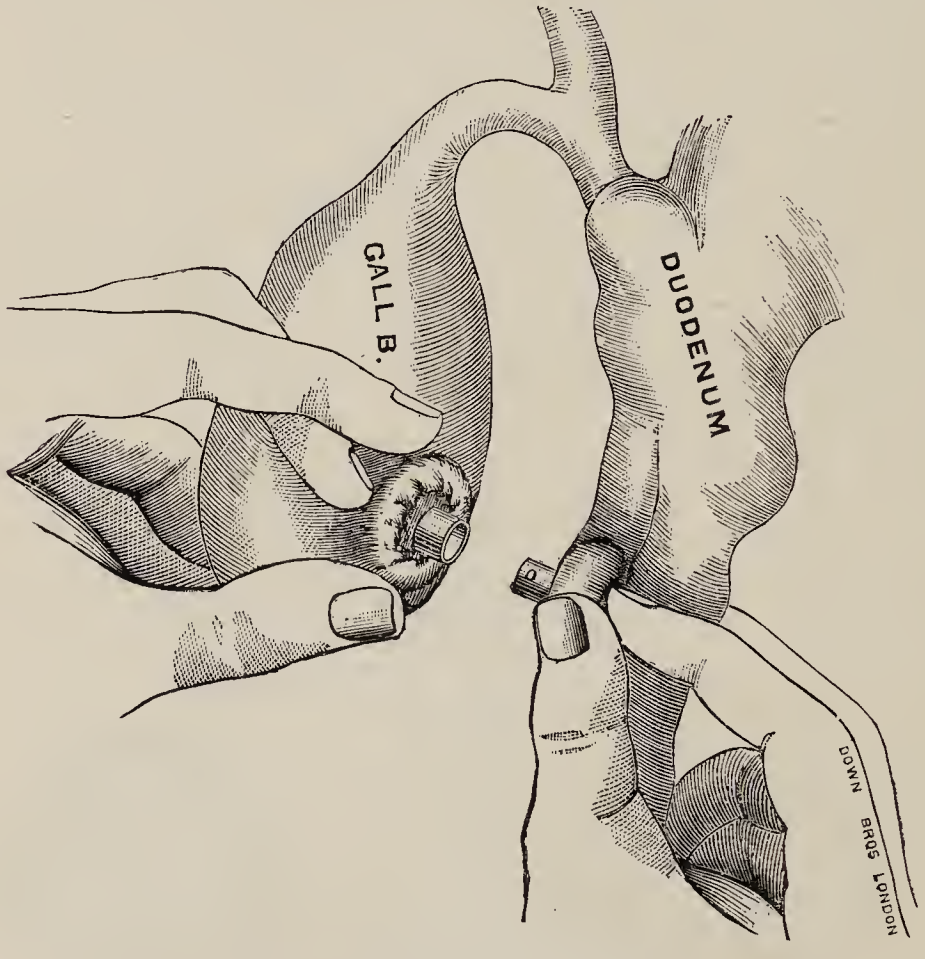

FIG. 4.—Showing method of holding parts while approximating button in cholecystenterostomy.

director, with the scissors cutting through the muscular and serous coats down to the mucous coat, completely around the stomach where it is to be excised; next denude the mucous membrane of its muscular and serous coats for half-an-inch in the direction of the fundus; excise the mucous membrane at this point; close the mucous membrane with continuous catgut suture, and over this the serous and muscular coats with interrupted silk suture. The end of the stomach is now completely closed. Excise the duodenum an inch and a-half

below the pylorus, insert a running thread as described below under the head of "end-to-end approximation," and place the male half of the button in position. The female half of the button is inserted in the posterior wall of the stomach two inches from the line of suture, in the same manner as it is inserted in the gall-bladder. The forceps are removed, and the button is pressed together. The end of the duodenum is then joined to the posterior wall of the stomach. The button liberates itself and passes on through the bowel.

FIG. 5.—Suture of running thread as placed in end of bowel.

(3) *End-to-end approximation.*—The intestine is cleared of its contents, and the intestinal compression clamps are placed in position. The mesentery of the portion to be excised is ligated; the intestine is excised; a running thread is placed in position

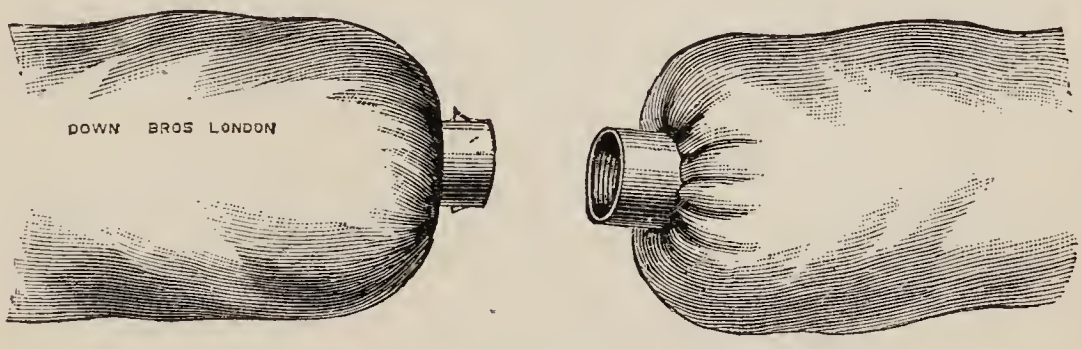

FIG. 6.—Button in end of bowel ready for closing.

by a top stitch along the excised edge, beginning opposite the mesentery and continuing down to the mesentery, one return over-stitch is taken at the mesentery (see Fig. 5, *a*); and then the top stitch is continued up the opposite side to the starting point; this constitutes the "puckering string" and when tied around the stem of the button, which is then inserted, draws the cut edge within the clasp. Particular attention should be given to the return over-stitch at the mesentery, so that both

layers of the peritoneum overlap. The other half of the button is inserted in the same manner, and the button is then pressed together (Fig. 6).

I advise the use of a special size button, one and a-half inch in diameter, for the end-to-end approximation of the large intestine. It is more easily applied and has a larger central opening for the temporary passage of fæces.

(4) *Lateral approximation.*—The button in the lateral approximation is inserted in the same manner as described

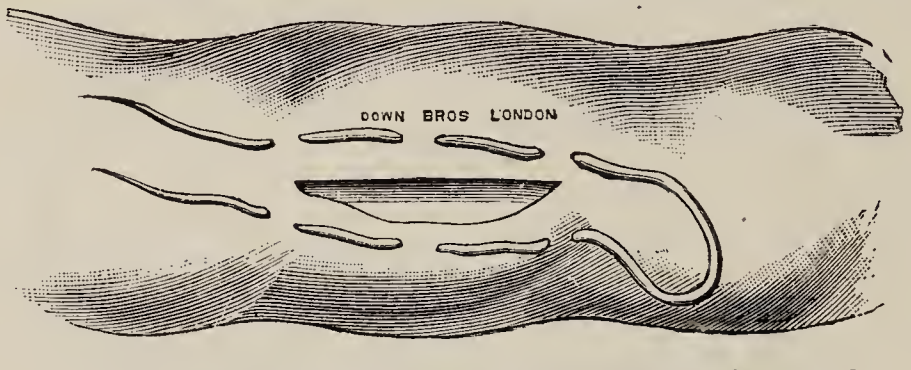

FIG. 7.—Showing method of introducing sutures in lateral approximation, and relative size of incision.

in cholecystenterostomy. The spring cap is held down to the edge of the bowl by a forceps, as shown in Fig. 2, while the button is being inserted. As soon as the button is in position change the hold by grasping it at the edge of the cylinder, and then tie the running thread. Do not make the incision too long, not more than two-thirds the diameter of the button; it will stretch (Fig. 7). Grasp the wall of the intestine at each end of the incision with tissue forceps while inserting the button. Do not cut the running thread when making the incision. Do not enclose too much tissue in the suture. When closing the button be sure that the incised edge is always within the clasp of the button. Do not use a Lembert suture with the button; it is useless. It is not necessary to abrade the peritoneum.—*The Lancet*, *September* 15, 1894, *p.* 624.

50.—ON CANCER OF THE RECTUM AND ITS TREATMENT BY EXCISION.

By THOMAS JONES, F.R.C.S., Professor of Surgery in Owens College.

Malignant disease of the rectum must be regarded as one of the most distressing of the many manifestations of cancer. Although at first the symptoms of the disease are often few, and by no means significant, its later course is usually marked by an

amount of suffering which is very distressing to witness. What can be more dreadful than to watch a patient who is in the last stage of the disease? He is racked with pain, is constantly troubled with a discharge of blood-stained mucus and pus, and to add to his distress he is threatened with complete obstruction. His sufferings are clearly depicted in his countenance, and his mental agony is beyond description. Any chance of relief from such a condition is gladly welcomed, and it is with the view of recommending the plan of treatment by excision that I have written this paper. My personal experience of the operation is not extensive—it is limited to 9 cases—still the measure of success attained in these has led me to the conclusion that in suitable cases it affords a means of relief which should certainly not be denied to the patient.

The operations recommended for rectal cancer are divisible into two classes: (1) Those that aim at the relief of urgent symptoms, and (2) those that have for their object complete removal of the diseased mass. Among the former, colotomy, without doubt, offers the best prospects. It not only relieves the sense of weight and uneasiness in the part affected, and removes all chances of obstruction, but checks the progress of the disease, and places the patient in a state of comparative comfort. Should this operation be resorted to early, or only when the symptoms have become well established? Personally, I am against waiting until the disease has made serious inroads upon the patient's strength. Free scooping away of the diseased mass and linear proctotomy are methods of relief which have little to recommend them. Removal of the cancerous growth by the free use of a scoop or of the fingers may relieve the symptoms of obstruction, and should perhaps be adopted when other means are not available. And it appears from the cases that are on record, that when the diseased mass is thoroughly broken up and taken away, the loss of blood has not by any means been conspicuous. Strange as it may sound, partial cicatrisation has even taken place in such cases.

The radical cure of rectal cancer can only be effected by free excision from the perineum, and of late years this procedure has been revived with a fair prospect of success. If the operation is adopted indiscriminately in all cases it is certain to fall into disfavour. The merits of each case, as it presents itself before us, must be carefully weighed, and only those cases operated upon in which there is a reasonable prospect of removing the whole of the disease. Before a final decision is arrived at the rectum must be explored while the patient is under the influence of an anæsthetic, and attention directed to the following points:—The extent of the disease and the state of the rectum in regard to mobility in the pelvic space. We must also have

regard to the general condition of the patient with respect to strength and nutrition; his age; as to whether there is any evidence of the disease affecting parts outside and adjacent to the rectum; also, whether there are any symptoms to show secondary deposits in the liver or elsewhere.

The immediate risks of the operation do not appear to be great; the deaths have been placed as high as 16 per cent., but Czerny operated upon 25 cases with one death only as the direct consequence of the operation. As might be imagined, the cause of death in the large majority of cases has been pelvic cellulitis and peritonitis.

There is a considerable difference between the modes of operating in England and abroad. Kraske's method is largely adopted on the Continent, the coccyx and left lower part of the sacrum being removed in order to obtain sufficient space for the necessary manipulations, and the rectum brought down to be attached to the skin. Cripps objects to this as favouring the production of pockets outside the rectum in which decomposing fluids may accumulate. So far as I have seen, this objection is not founded on any substantial basis. In all my cases I have brought down and fixed the entire circumference of the rectum or a considerable portion of it, and have never witnessed any ill effects from the practice.

What is the condition of the patient after excision, and what are the probabilities of a complete cure? As to his condition, it will compare very favourably with that obtained by colotomy. When compared with that in which a patient with advanced cancer of the rectum finds himself, the condition is infinitely preferable. In most instances the patient recovers sufficiently to enjoy life, and even to resume active work, and it is possible that the disease may not show itself locally, but return in some internal part where its ravages are less dreadful to witness. Besides this, the moral effect of total removal of the disease cannot be overestimated. The effect on the mind of the presence of a disease which it is impossible to remove is of the most depressing character; with its removal the patient may recover much of his wonted spirits and buoyancy.

With regard to the possibility of a complete cure, the statistics furnished by Cripps are very encouraging. In nine out of twenty-three cases the disease recurred after periods varying from four months to two years, but six remained well after intervals which varied from two to four years. In this, as in all operations for the removal of cancer, the need for an early diagnosis and prompt and efficient treatment must be constantly kept in view. Too frequently the cases come under observation only after the favourable time for radical surgical interference has passed away. The symptoms may have been so slight that

the gravity of the disease has been overlooked. The need for a more frequent and routine examination of the rectum is therefore most desirable.

It is an undisputed fact that cancer of the rectum remains confined to the gut for a very considerable time, and if we are fortunate enough to see the case thus early, the chances of successful extirpation are certainly encouraging. Once let the favourable opportunity slip, and allow the disease to travel beyond the limits of the gut, the chances of doing any good by removal are of the remotest kind. To operate under such circumstances is to put the patient to needless pain and discomfort. It is impossible to remove the whole of the disease, and it is certainly better for the credit of surgery that no attempt should be made. The only chance of obtaining relief in such cases is by colotomy.—*Owens College Medical Chronicle, April*, 1894, *p.* 11.

51.—ON EXCISION OF THE RECTUM FOR CANCER.

By J. E. Platt, F.R.C.S.

[Mr. Platt has collected the cases, twenty-one in number, in which a portion of the rectum has been excised for cancer, at the Manchester Royal Infirmary, since 1888, and makes the following remarks upon the value of the operation :]

In estimating the true value of excision of cancer of the rectum, it is necessary to compare the results with those which are obtained after colotomy, remembering that whilst one operation aims at a radical cure of the disease, the other is merely palliative. The question may conveniently be considered under the following headings :—(1) The mortality ; (2) the chances of a permanent cure ; (3) the duration of life after operation ; and (4) the relief afforded to the patient.

(1) The mortality after excision is certainly greater than after colotomy. Since the inguinal method of colotomy has come into general favour, the death-rate after the palliative operation has been reduced to a very small percentage. On the other hand, excision shows a rather high death-rate, although this has been greatly reduced during recent years by more strict attention to the details of the operation. Mr. Butlin collected 100 cases from English and Continental sources, with 35 deaths ; McCosh, 439 cases from English, Continental, and American sources, with 84 deaths (19·1 per cent.) ; Mr. Ball, 175 cases, with a mortality of 16·5 per cent. Amongst the 21 cases I have collected from the Manchester Infirmary records there were three deaths (14·3 per cent.). The causes of death are chiefly septic

periproctitis and peritonitis, which were accountable for 23 out of 35 deaths in Mr. Butlin's cases, and more rarely shock, exhaustion, and pyæmia.

(2) As to the chances of permanent cure, published statistics are, on the whole, encouraging. As a general rule it may be stated that cases in which there is no recurrence at the end of four years are cured. McCosh collected 375 cases, mostly from German sources, in 32 of which there was no recurrence at the end of four years, and Butlin mentions 13 cases which had no return after periods varying from two to six years. Examples of non-recurrence after longer periods are fairly numerous; thus Kocher had 5 patients who were perfectly well after nine years (1 after sixteen and a half years), Curling 1 after six years, Czerny 1 after twelve years, Velpeau 2 after ten years, and Ball 1 after six years. However, recurrence may take place after long intervals, for Volkmann has recorded examples of return of the growth after five, six and eight years respectively. The cases I have collected are too recent to be of much service in deciding this question; of the patients now living only five have no recurrence, the time since operation being two years in one instance, fourteen months in a second, and from five to seven months in the three others.

(3) With regard to the duration of life after operation, statistics show that, leaving out of consideration the immediate risks, life is more prolonged after excision than after colotomy. Eleven of the above patients are still alive, the time since operation being five years in one instance, four and a half years in another, three years in a third, and two years in two others. These periods are longer than we can expect in the majority of cases after colotomy. The duration of life after operation in those patients that died from recurrence, varied from six months to two years.

(4) McCosh states that, even when recurrence takes place, excision gives more relief than colotomy. Amongst the above patients the operation gave marked relief in eleven, some relief in four, and in only three did it fail to confer any benefit. One patient had the rectal trouble greatly relieved for five years, another for two years, a third for fifteen months, a fourth for fourteen months, and a fifth for twelve months. Two had no return of the cancer in the rectum, although the disease recurred elsewhere. Even when no relief is given, it is possible to perform colotomy.

Taking these as a whole, the advantage is certainly in favour of excision.

Amongst the sequelæ of the operation must be mentioned prolapse, stricture, and incontinence. Prolapse appears to be very uncommon; I find no mention of it in the works which

I have consulted; it was met with in one case after removal of one and a half inches of the rectum, although one must mention that this patient suffered from prolapse of the anterior wall of the bowel before the excision. Stricture also is not frequent; it only occurred once in the cases I have collected. More important is loss of control over the bowels, for, when the whole of the lower part of the rectum is removed, we can only expect more or less incontinence: it is surprising, however, to find how slight this is in the majority of instances; nearly every patient has informed me that he has very fair control over the bowels, except when the motions are liquid, and several have no incontinence whatever. Mr. Cripps states that incontinence was only present in 7 out of 36 patients operated upon by him, and that defæcation was normal in 23. With the object of preventing incontinence it has been proposed to preserve, if possible, the sphincters, together with the lowest portion of the bowel, and to unite the cut ends by means of sutures. The objection to this is that the sutures are very apt to cut out and lead to extravasation of fæces, an accident which, according to Arnd, occurred in eight out of fifteen cases. Heineke, von Bergmann, and Kocher are opposed to any attempt to preserve the lowest portion of the bowel. Possibly, in future, the risk of cutting out of the sutures may be diminished by uniting the divided ends by means of Murphy's anastomosis-button, as in two successful cases recorded by Marcy. At the Infirmary the lower part of the bowel was only preserved once, the result being very good. With the same object in view, Willems recommends that the divided end of the bowel be brought through a slit made in the lower border of the gluteus maximus, hoping that the muscle will act as a sphincter, but, as far as I know, the operation has only been practised upon the cadaver. Gersuny advises torsion of the divided end of the bowel, which is seized with two pairs of catch-forceps and twisted until there is a distinct resistance to the entrance of the finger: the torsion is maintained until the bowel is sutured to the skin. He has adopted this method twice, and Ball once, with excellent results.

In conclusion, excision of the rectum has hitherto given a very fair amount of success, the results comparing favourably with the results of excision of cancer from most other parts of the body. Probably in future the mortality will be diminished, and greater freedom from recurrence will be obtained, by operating at an earlier stage of the disease. The necessity of a complete local examination in all rectal affections and of operation in the early stage of cancer, has recently been very forcibly stated by Mr. Jones. Cancer of the lower bowel is almost always columnar epithelioma, which is undoubtedly the

least malignant form of cancer, and there is no reason why early operation should not lead to cure in a fair proportion of the cases. Even if excision does not prevent recurrence, it will prolong life and give relief in most instances.—*Medical Chronicle, September*, 1894, *p.* 426.

[See also "Cancer of Rectum, Excision of," in *Synopsis* of this volume of the *Retrospect*.]

ORGANS OF URINE AND GENERATION.

52.—ON FIBRO-ADENOMA OF THE BREAST.

By Raymond Johnson, F.R.C.S., Hunterian Professor of Surgery at the Royal College of Surgeons.

[In the course of his first lecture on Tumours of the Breast, Mr. Raymond Johnson, having pointed out the great rarity of true adenoma of the breast, says :]

I now pass to the consideration of the commonest of all the simple tumours of the mamma, which I will speak of provisionally by the well-known name "chronic mammary tumour." All are agreed as to the clinical features of this tumour. It occurs most commonly before the age of 30, it is more or less lobulated and definitely encapsuled, moves independently of the breast itself, and contracts no adhesions to the nipple, skin or deep structures. The tumour lies most commonly at the periphery of the breast or upon one of its surfaces ; much less frequently it is embedded in the substance of the gland. The operation for the removal of such a tumour is extremely simple; it can be easily shelled out after the free incision of the capsule in which it lies. In the majority of cases no part of the breast tissue is divided, but the capsule of the tumour is exposed immediately beneath the subcutaneous fat. When the tumour lies thus superficially it is usually found to be slightly attached by its deep surface to the breast, and often a thin strand of tissue requires division at this point. The process of enucleation is thus not altogether comparable to that of a fatty tumour, which can often be squeezed from its capsule without further use of the knife when the capsule itself has been freely opened. In a much smaller proportion of cases the tumour is not exposed until a certain thickness of breast tissue has been divided, but in these cases the encapsulation of the growth is still perfect, and, further, the intimate connection between the tumour and the breast at one spot is usually obvious. The capsule of the tumour usually presents an appearance suggesting that

it is merely formed by condensation of the surrounding connective tissue; at other times the inner surface of the capsule is smooth and glistening. The surface of the tumour is, as a rule, lobulated and its general shape rounded. A section of the tumour presents naked-eye appearances which differ considerably in different specimens. The colour is usually dense white, more rarely with a pinkish tint. In some specimens the section has the appearance of a dense fibroma, being almost homogeneous or presenting a glistening, wavy surface. Not uncommonly small cysts are laid open by the section, or the surface may be intersected by fine branching clefts which give rise to the "split cabbage" appearance described by Virchow. These clefts may at times be so arranged that the tumour appears to be composed of closely packed foliaceous masses which project on the divided surface. In the larger tumours there is often a subdivision of the growth into lobules, which may differ considerably from one another in their naked-eye characters.

The microscope reveals one fact which is constant in all growths of this class—viz., that they contain glandular tissue and connective tissue in varying proportions. Little need be said concerning the fibrous groundwork, which presents every variety between closely packed bundles of white fibres with scanty cellular elements, and a loose connective tissue, rich in small round, oval, and spindle cells. The blood-vessels are usually small and few in number. Various modifications of the fibrous stroma may occasionally be met with, such as calcareous deposit and mucous softening. Such changes are of little importance, and their presence in no way affects the nature of the growth. I may refer, however, to the occasional presence of fat in the stroma, of which I have met with two instances. In both cases the tumour presented the usual characters of this class and the fat was present in small quantity. Mr. Bryant has recorded a remarkable case of lipomatous adeno-fibroma. The tumour was as large as a walnut and was removed by Mr. Cooper Foster from a male child ten months of age. It was composed of fat and fibrous tissue and "a number of tubes like breast tubes." I have thought it worth while to refer to this occasional presence of fat in the connective tissue of these tumours because it is very unusual, and, indeed, the presence of fat in a tumour of the breast may usually be taken as evidence that the growth is infiltrating and therefore malignant.

The glandular elements of the growth need our careful consideration, and, on account of the great diversity of the characters presented by different specimens, it will be impossible to refer to more than certain types. It is convenient to

start with that variety in which the glandular tissue more or less closely resembles the acini of a normal breast. The acini may be scattered irregularly through the stroma or may be grouped into lobules, the individual acini being connected by small ducts.

The epithelium varies; at one time it consists of a regular single layer of cubical or spheroidal cells set upon a basement membrane; in other specimens the spaces are lined by several layers of small epithelium beneath which no basement membrane can be detected. The presence of a basement membrane has been given as one of the microscopic features of a simple glandular tumour. My own belief is that it is very inconsistent and that its absence justifies no conclusions as to the nature of a growth. The absence of large ducts from the chronic mammary tumours is almost constant. A common modification of the glandular tissue of the tumour results from a more or less general cystic change. The cysts may be microscopic or may reach a considerable size, partly increasing by the coalescence of adjacent spaces. The epithelium may present any of the characters above described. Still more frequently, however, the glandular tissue takes the form of fine cleft-like spaces intersecting the tumour in every direction and producing the characteristic naked-eye appearances already mentioned. These clefts appear in some specimens to represent elongated ducts uniting the acini. As a rule, however, it is impossible to say what part is taken by the small ducts and acini respectively in the production of the clefts. The latter may become much compressed and the lining epithelium very small and atrophied; so that, indeed, the glandular elements appear to take a very insignificant part in the structure of the growth. In tumours presenting this variety of structure the fibrous groundwork is usually very dense, and it seems probable that the condition of the glandular tissue may be the result of this. By a gradual transition we pass from the tumour which is intersected by narrow glandular clefts to that in which the branching of the spaces reaches such a degree that the fibrous groundwork is broken up into closely packed papillary and foliaceous masses, thus repeating on a small scale the appearance which the section of many of these tumours present to the naked eye. The structure is exactly the same as may arise from the growth of intracystic vegetations into pre-existing spaces. The solid fibrous stroma, which is thus broken up by the intersecting glandular clefts, frequently contains glandular tissue in one or other of the forms already described.

The differences in detail of structure between the varieties of tumour above described are certainly considerable. By the examination of a large number of specimens, as well as of

different parts of the same one, we are, however, forced to conclude that one name may be applied to the whole group. The differences in detail of structure are not associated with corresponding clinical differences, although one is bound to admit that the variation is considerable between the tumour rich in glandular acini and that in which the glandular elements are merely represented by scanty epithelium-lined clefts. In our endeavour to find a suitable name for the tumour in question we have at disposal, amongst others, the following: chronic mammary tumour (Cooper), pancreatic sarcoma (Abernethy), mammary glandular tumour (Paget), lobular imperfect hypertrophy (Birkett), fibroid glandular tumour (Foerster), adenoma with preponderance of stroma (Broca), adenocele, corps fibreux (Lebert, Cruveilhier), adeno-fibroma (Billroth), fibro-adenoma, and fibroma (Cornill and Ranvier, Labbe and Coyne, Gross). The clinical features of the tumour are characteristic, and, as we have seen, the structure is constant, differing only in non-essential details. We require, therefore, a name which is based on the pathological structure. Two chief views are held respecting the true nature of the growth. On the one hand we find those who consider the fibrous ground-substance to be the only essential part of structure, viewing the glandular elements as accidental remains of pre-existing breast tissue, variously modified by the overgrowth of connective tissue around it; according to these the tumour is a fibroma. On the other hand are those who consider the glandular elements to be an essential part of the structure of the tumour, and consequently regard it as a variety of adenoma. I will at once state my agreement with those who hold the latter view, and I would suggest that the most accurate name which can be applied to the tumour is that of "fibro-adenoma," which correctly expresses its nature—an "adenoma with preponderance of stroma."

It seems to me that we have very sufficient evidence for looking upon the glandular portion of the growth as the essential part of its structure, whilst most serious objections can be raised against the view that the growth is a fibroma containing accidental remains of glandular tissue. According to this view the tumour owes its origin to a localised overgrowth of fibrous tissue through a part of the breast, and the glandular tissue of the tumour is that of the breast-lobule thus involved. The principal objections which can be raised to this view of the nature of the fibro-adenoma are as follows: 1. Clinical evidence shows that the tumour in its earliest recognisable stage is still a definite encapsuled growth and not a modified lobule of the breast. On this point the patient's history, as far as this can be trusted, is usually quite clear, for we are told that the

tumour when first noticed felt "like a little pea slipping about over the breast." 2. If this view be true, the relative amount of glandular tissue should become insignificant as the tumour increases in size. This is far from being the case, and a tumour several pounds in weight may be throughout rich in glandular tissue, whilst the breast itself, although displaced, appears to be otherwise unchanged. Hence it follows that the glandular elements must increase, *pari passu*, with the growth of the tumour; and further, the glandular tissue presents appearances which it seems impossible to explain as the mere result of the formation of new fibrous tissue around it. 3. If a fibro-adenoma owes its origin to a fibrous overgrowth in a breast lobule, why are not all the constituents of the lobule represented in the tumour? Frequently acini only are found in the growth, and certainly the larger ducts are almost invariably absent. The remark of Gross applies to the fibro-adenomata as to the true adenomata; "the efforts of nature appear to be confined to the excessive production of glandular apparatus, without attempting to unite the acini into distinct lobules attached to excretory ducts." 4. A fibroma is a simple encapsuled tumour, which shows no tendency to invade the part in which it lies, and, as met with in other situations, no remains of the surrounding tissues enter into its composition. For instance, a fibroma of muscle does not contain muscle fibres scattered through its substance, whilst a fibroma in the subcutaneous tissues is altogether devoid of fat. 5. The common occurrence of these tumours in the breast is difficult to explain on the supposition that they are fibromata, which are by no means common in other situations where fibrous tissue is equally abundant. If, on the other hand, they are glandular growths their frequent occurrence in the breast is readily intelligible. 6. Pure fibromata are, as we have already seen, occasionally, though rarely, met with in the mammary gland. A comparison of the fibroma and fibro-adenoma suggests that they are essentially different.

If the name of a tumour is necessarily to be founded upon the tissue of which it is chiefly composed, many fibro-adenomata undoubtedly merit the name "fibroma." On the same grounds many hard carcinomata should be called "fibromata," for in many of these the relative proportion of the epithelial elements is not greater than in some of the tumours under consideration. Considered from this point of view, I take it that the name of a tumour is much more justly determined by so highly differentiated a structure as glandular tissue than by the mere presence of simple fibrous tissue, however abundant. Delbet in in a very able article on Diseases of the Breast in the Surgery of Duplay and Reclus, raises four objections to the connective

tissue theory of the chronic mammary tumours: (1) It does not explain the presence of the glandular culs-de-sac, as these tumours do not increase by infiltration; (2) it does not explain the number of the glandular elements; (3) it fails to explain the formation of cysts; and (4) it does not account for the frequency of these tumours of the breast. Delbet further suggests that the name *acinoma* would be more strictly accurate than adenoma. It is, however, most inadvisable to introduce new names into an already crowded nomenclature unless such additions be really required. We have, indeed, evidence to show that the name "acinoma" is not strictly accurate, for it has been already insisted that in their pathological behaviour we are little able to distinguish between the acini and the smaller ducts. Labbe and Coyne are amongst those pathologists who view these tumours as simple connective tissue growths, and they distinguish two varieties — one in which the cysts contained in the tumour are devoid of vegetations—the "pericanalicular fibroma," and another in which the cystic spaces in the tumour are occupied by intra-cystic growths — the "endocanalicular fibroma." These names become unnecessary if we allow that the glandular elements are an essential part of the structure of the tumour, and not merely passive remains of pre-existing spaces around or within which the fibrous tissue has grown.—*The Lancet, June* 9, 1894, *p.* 1434.

53.—ON THE DIAGNOSIS OF SYPHILIS OF THE EPIDIDYMIS.

By Charles W. Allen, M.D., Surgeon to the City Hospital, New York.

The diagnosis of syphilis of the epididymis must be made from a variety of conditions, but while urethral epididymitis of course leads in frequency, we must bear in mind that parenchymatous enlargement may take place from a variety of systemic or general affections, while those forms which have occasionally been attributed to rheumatism or gout are probably to be referred more accurately to urethral or syphilitic causes if carefully analysed. In acute blennorrhagic epididymitis we have the discharge and the acute onset, with pain, to render the diagnosis clear, while in the chronic urethral form the tail is the part of the epididymis most frequently left hard, and there is a history of urethritis usually not very remote. In the pseudo-tubercular variety, with nodular indurations often marked by accompanying hydrocele, the diagnosis is more difficult, but concomitant evidences of syphilis will assist.

Here, too, the diagnosis must be made from tuberculosis, and coincident evidences of tuberculous disease in other organs must be looked for or excluded. If patient is syphilitic, and has recently had a gonorrhœa, the difficulties are increased. The pseudo-tuberculous epididymitis is peculiarly indolent and not influenced by iodides, and some cases will have to undergo a period of observation before a positive opinion can be vouchsafed.

When fibrous changes have taken place after a chronic gonorrhœal inflammation, much care must be exercised to avoid faulty interpretation of the condition.

As a rule, the globus major is alone or primarily affected in syphilis, but as this is true also of tubercular change, it has no great diagnostic value as between these two states. Diagnosis must also be made from cancer, sarcoma, fibrous tumour, cyst, &c.

In cancer there is inguinal adenopathy and possibly cachexia.

The early diffuse syphilis of the epididymis, or syphilitic epididymitis proper, is usually confined to the globus major, though cases are recorded in which the tail has been alone inflamed, and often the body suffers too. The enlargement may be either rounded or irregularly square or angular, and not often much larger than an American chestnut. There appears to be a decided tendency for both epididymes to suffer coincidently or one after the other. If other diagnostic features are not sufficient, the fact that the infiltration entirely and quite promptly disappears under anti-syphilitic treatment makes its nature clear.

Sequelæ are usually absent, while after gonorrhœal epididymitis fibrinous remains are apt to show themselves for a long time, especially about the tail.

The gummy tumour of the epididymis may occur quite early or very late, as seen in instances cited. If small gummy nodules are scattered through the organ, especially the globus major, there may be but little enlargement, while if a diffuse gummy mass has formed, the tumour may surpass the normal size of the whole testicles several times over. Such gummata may, in being absorbed, leave the organ atrophied. Here the diagnosis is more especially to be made from orchitis gummosa, and from gumma involving both testicle and epididymis, while those showing great plate-like masses may simulate vaginalitis or periorchitis prolifera, but in the latter the thickened mass would not melt away under iodides. In orchitis the scrotal skin is here stretched tense, and the veins are more distended.

Now, as concerns the question of abscess and fistulous formation in gummous infiltration, they may occur, in both of which gummy abscesses of the scrotum ruptured externally,

and in one of which a fistulous opening remained, and discharged for some time. Affections of the albuginea have been considered more likely to result in this way from their superficial situation, but in these cases there seemed no doubt that the process started in the epididymis. Gumma of the cellular tissues of the scrotum alone would be freely movable over the tail of the epididymis, which could be distinctly separated from it, which was here not the case. Ricord's view, that when suppuration of the scrotal tissues took place it was always due to changes in the cellular tissue, rather than in the testicular parts, is clearly faulty, and Rollet plainly showed, in 1861, that gumma of the testis could soften and discharge externally, and I have myself seen a gummy testis discharge itself externally with the formation of a large fungus.

That fistula may disappear under iodides is shown in two instances here recorded. The condition is at best rare in which a fistulous tract reaches the testicle, but instances in which they connect the epididymis with the outer world are still more rare. Cases in which persistent fistulous openings have existed have been too often subjected to castration, more especially in former times. Thus, West records two instances, one seven and the other four years after the chancre in which this operation was done, and on examination in one case disseminated gummata were found in both epididymis and testis, and in the other a fibrinous deposit, causing adhesion to the skin and breaking down of the lowly organised product. This was in 1859. To-day, I have no doubt, these testicles would have been saved by the iodides.—*The American Journal of the Medical Sciences, April*, 1894, *p.* 404.

54.—ON THE PREVENTION AND TREATMENT OF SURGICAL NEPHRITIS.

By Edward L. Keyes, M.D., New York.

[The following excerpt is taken from an important paper on Nephritis in its Surgical Aspects :]

The method of instituting catheter life which yields me all the satisfaction I require is the following :—A rubber catheter is kept constantly in a 1 in 4,000 bichloride solution, and washed in very hot water after each use. Simple glycerine is the lubricant. The anterior urethra is to be flushed as the catheter enters for the first time, and all the way in through the membranous and prostatic urethra, with a 1 in 4,000 bichloride solution. The urine is to be entirely, but very slowly, drawn off (watching the pulse), the patient being recumbent. The

bladder is then to be immediately washed out with a 1 in 1,500 (sometimes 1 in 2,000, if the stronger causes too much pain) nitrate of silver solution, which usually occasions moderate temporary tenesmus. The bladder may then be washed out with a 6 per cent. salt solution (heaping tablespoonful to the quart), this to be drawn off, and such quantity of a weaker salt solution (teaspoonful to the quart) introduced and left in as the surgeon may think best.

The clean catheter, taken out of its bichloride solution and rinsed in hot water, and the salt solution are to be used as often as any catheter is called for—further urethral flushing being a matter of personal judgment—the nitrate of silver repeated every one, two, or three days.

With such simple precautions catheter life may be safely instituted without implicating the kidneys, and often (unless the bar at the vesical neck bleed from being bruised) with, practically, an absence of pus in the urine, and this goes on until the tissues become hardened, when a non-disinfected catheter may be safely used, if simply kept clean.

When an operation is to be performed the urine is usually already purulent. In this instance it is better, and it has become almost a routine matter with me, to flush out the entire urethra and bladder before the operation with a salicylic acid solution followed by a 1 in 3,000 or 4,000 bichloride solution (this after the anæsthetic has been administered), and to follow the operation by a flushing out with a nitrate of silver solution, 1 in 1,000; finally, and in subsequent washings for cleanliness, using about a 6 per cent. solution of common salt in hot water, and such strengths of mercuric or argentic irrigation as seem called for.

I have discarded Thiersch's solution and boric acid for the same reason—difficulty of prompt preparation. If the Thiersch solution be made on the spot (salicylic acid, ʒss; boric acid, ʒiiiss, in powder, added to a quart of hot water, is near enough to the formula) it dissolves slowly. If the cold solution has to be heated it is troublesome. Boric acid also dissolves slowly, and bacteriological experiments show that it is no more effective in killing germs than is salt and water. Now salt dissolves at once, and it is more cleansing than simple water, therefore I use it; and salicylic acid, besides being an admirable germ-killer, has the extra advantage, first pointed out by Bryson, of St. Louis, of penetrating further and cutting deeper into the thick cohesive muco-pus of chronic catarrhal inflammation than any other substance. Therefore I have had made a solution of salicylic acid in alcohol, eight grains to the ounce. Bacteriological tables show that one-half grain salicylic acid to the ounce is as effective a germ-killer as Thiersch's solution; consequently, by

adding one ounce of my alcoholic salicylic acid solution to a pint of hot water, I have a mixture promptly made, and as effective as that of Thiersch.

These are the solutions, and this the routine method upon which I rely for avoiding kidney complications when surgical interference upon the bladder is called for.

Medicines, to affect the urine and the flushing of the kidney by diluent waters, are adjuvants of no mean value in keeping down kidney complications and moderating them when they exist in a chronic form.

And here I wish to lay emphatic stress upon, and call especial attention to, the value of abundantly flushing the urinary passages with bland mineral waters of the diluent variety, as a means of flooding out both pus cells and micro-organisms mechanically in many forms of chronic suppurative disease all along the urinary tract.

I know of no one single agent that possesses so much power for good. The enemy is decimated by this method of warfare, and can be taken at a disadvantage. I refrain from speaking the names of the mineral springs that possess this power—and there are many of them—because the commercial spirit of to-day prostitutes such utterances.

The character of the mineral ingredient in the spring is not material. All that is required is that one may be able to stomach the water freely—to drink a gallon, two gallons a day, or more, and that the water shall not affect the bowels.

A number of such waters exist. Distilled water does not do the work, nor does rain-water. Ordinary clear spring-water fails. In selecting a mineral water it is only necessary to find a cheap one that may be consumed in vast abundance without a feeling of repletion—one that will pass rapidly through the kidney, having no influence upon the individual other than the diuretic one.

And, in closing, I wish further to emphasise two prognostic points : one is the common error of believing that the presence of pus in the urine is capable of accounting for a considerable amount of albumin. One constantly hears this expression : "Albumin in the urine accounted for by the pus." Surely this is true of a trace of albumin—but only of a trace. An admixture of blood with the pus, or of blood-serum coming from an excoriated tumour in the bladder, or from an ulcer ; this will account for albumin in quantity ; but when there is no tumour, no stone, no ulcer in the bladder, there may be very considerable amounts of pus with barely a trace of albumin, and if under such physical conditions the amount of albumin be relatively large, it usually means pyelitis—implication of the kidney in interstitial or parenchymatous change, and by so

much becomes a factor of importance in prognosis. Anything over ½ of 1 per cent. by weight of albumin in urine, however purulent—if there be no blood in the specimen, no tumour, no stone, no ulcer in the bladder—becomes a factor in the question of prognosis when the point of the expediency of an operation comes to be considered. These cases may be assumed to have already reached a degenerative stage, and the chances of lighting up surgical kidney by operative interference below are relatively great.

The prognosis is, however, not worse—not so bad—as it is in the case of sclerotic kidney, with dilated ureter, &c., those cases in which there is active polyuria, worse at night, clear or nearly clear urine, with only a faint trace of albumin, or none at all. Such patients, after operation, are apt to die intensely uræmic, passing quarts of urine, and sometimes with little or no fever.—*The American Journal of the Medical Sciences, June*, 1894, *p.* 622.

55.—THE COMPARATIVE SAFETY OF SUPRAPUBIC LITHOTOMY, OF LATERAL LITHOTOMY, AND OF LITHOLAPAXY IN YOUNG MALES.

By Gilbert Barling, F.R.C.S., Surgeon to the Birmingham General Hospital.

[After a brief reference to the paper on litholapaxy in male children, published in the *Lancet*, May 27, 1893, by Brigade-Surgeon-Lieutenant-Colonel Keegan, in which it is shown that the crushing operation has been done in India with a mortality of 2·71 per cent., and also to Mr. Henry Morris's Cavendish Lecture of 1893, Mr. Barling says:]

My chief purpose is to bring forward statistics showing the mortality in English hospitals of the various operations performed for stone in young males.

To hold the balance fairly between the three operations it is essential that an inquiry shall not go back more than a few years, seeing that the suprapubic section, and especially litholapaxy in boys, have only been established as routine procedures for a comparatively short time. I therefore limited my inquiries to the five years 1888 to 1892 inclusive of both. Some hospitals do not publish statistics, others do so in such an incomplete manner that the figures are of no use for my purpose. The inquiry was therefore limited to six hospitals in London and six in the provinces, the majority being medical schools. The results are shown in the accompanying table.

TABLE.

SUPRAPUBIC LITHOTOMY (MALES).

Under 10 Years.			10 to 20 Years.		
Total.	Recovered.	Died.	Total.	Recovered.	Died.
44	34	10	28	23	5

Total under 20=72 cases with 15 deaths. Deducting three deaths, this leaves 69 cases with 12 deaths, a mortality of 17·4 per cent. The reason for this deduction is given in the text.

LATERAL LITHOTOMY.

Under 10 Years.			10 to 20 Years.		
Total.	Recovered.	Died.	Total.	Recovered.	Died.
39	37	2	20	20	0

Total under 20=59 cases with 2 deaths. Add 1 death from suprapubic operation after uncompleted lateral=60 cases with 3 deaths, a mortality of 5 per cent.

LITHOLAPAXY (MALES).

Under 10 Years.			10 to 20 Years.		
Total.	Recovered.	Died.	Total.	Recovered.	Died.
43	42	1	16	16	0

Total under 20=59 cases with 1 death. Add 2 deaths from suprapubic operation after uncompleted litholapaxy=61 cases with 3 deaths, a mortality of 5 per cent.

The number of cases is not as large as I could have wished, but it serves the main purpose I had in view in my inquiry, which was to show the relative risk of the three operations performed under similar conditions. I am bound to say it disappointed me that the high operation should show such a high rate of mortality as 17·4 per cent. This is after deducting three deaths, two of which were in patients subjected to litholapaxy, the suprapubic operation having been performed after crushing failed, so in the tables it will be seen that I have credited the crushing operation with these two deaths. Similarly the third was in a patient on whom lateral lithotomy was attempted but failed, owing to the size of the stone, and

this I have placed to the discredit of the lateral operation. Even after this correction contrast the mortality of 17·4 per cent. with that after lateral lithotomy, which is 5 per cent., and for litholapaxy barely 5 per cent.

It is interesting to see what were the causes of death after the suprapubic operation to explain a mortality which, to me, is surprising. The list is as follows:—Four deaths were due to shock, one of the four being in a case of uncompleted lateral operation and one in an uncompleted litholapaxy. Two were due to infiltration around the bladder, but one of these followed an incomplete litholapaxy; three were due to various conditions in the kidney, pyonephrosis, hydronephrosis, and calculus. Two patients died from peritonitis, and one each from pyæmia, septicæmia, bronchitis, and pneumonia.

Not unfairly it may be suggested that patients with the largest calculi are submitted to the suprapubic operation, and in such the mortality is sure to be higher than in the case of small stones removed by the other methods. This argument must be allowed some weight, but there is nothing to show that the calculi removed were of excessive size in a large majority of the cases; and, by subtracting the deaths after incomplete litholapaxy and lateral lithotomy, I have to some extent made allowance for the cases of unusually large stone.

As confirming the figures which go to show that the mortality after the suprapubic operation in children is greater than after the lateral, I may quote the remarkable experience of one children's hospital. I have a record of the stone operations in this institution for a number of years. From 1870 to 1887, inclusive of both, all cases of stone were submitted to the lateral operation, and of 70 cases only 2 died, a mortality of 2·8 per cent. over the eighteen years. At the same hospital, from 1888 to 1893, inclusive of both, 22 cases were operated upon, 15 by the lateral and 7 by the high operation. All the lateral operations were followed by recovery, whilst four of the high operations ended fatally. One of these four followed an incomplete lateral operation, as previously mentioned. Allowing for this, though, the result is to give in the last six years 22 operations, with 4 deaths, against 70 operations, with 2 deaths in the previous eighteen years, when wound treatment was not as satisfactory as it is now, and when the mortality after all operations was greater.

I do not pretend that the figures I have produced represent the absolute mortality which ought to follow either of the operations. On the contrary, I believe the mortality for the suprapubic operation is much too high, but they do show a relatively high mortality for the suprapubic operation difficult to explain away. This being so, it seems to me clear that the

operation of election in young males is either the lateral or litholapaxy. Of the advantages of Cheselden's operation not a word need be said here. The position and advantages of litholapaxy in children is not so clear, but it must be conceded that the splendid results it has given in India strongly commend it to us here. Personally I have only thrice performed this operation on boys, all of them during last year. With suitable instruments, and with a pillow under the buttocks to throw the stone away from the trigone to the posterior part of the floor, nothing is easier than to pick up the stone time after time; the mere manipulation is easier than in the adult bladder. The instruments used are so fine, however, that the operation is a tedious one; and if the stone is of considerable size and hard, by the time it is pulverised—for this is the condition to which it has to be reduced—and the bladder is empty of fragments, the patient will have been anæsthetised a long time, and much instrumentation will have been performed, making the operation quite a formidable one. The patients in my cases were all under 10, in each the stone was small, and all recovered. In two the recovery was uneventful, but the third gave cause for much anxiety. The stone was of very hard uric acid. When the lithotrite first broke it I had to use much force to screw it home, and as the stone broke it produced a noise like a small pistol shot; so remarkable was it that I thought the blades of the lithotrite must have broken. This was disproved, however, by my being able to pick up and crush the fragments. When all appeared pulverised the lithotrite was withdrawn, and as soon as it engaged in the urethra it was evident that something was wrong with it. With some force it had to be pulled out, when it was found that the male blade, at its distal part, had bent away from the female, and though the heel closed the beak would not. In the withdrawal the lithotrite must have lacerated the urethra all along. For a few days there was sharp constitutional disturbance, and on this subsiding the boy was sounded to see if any fragments remained. None were found, but the sounding, probably by tearing open the healing laceration of the urethra, set up a fresh feverish condition, from which the boy escaped by the skin of his teeth, and only after an abscess had formed over his sterno-clavicular joint. The boy is now well as the others are. Notwithstanding this *contretemps*, I regard litholapaxy for small stones in boys as a very facile and attractive operation. If time should show that there is no great tendency to recurrence of stone, after this operation, owing to fragments left unremoved, it will run the lateral operation hard as the routine operation for young males. The high operation will be reserved probably for large stones unsuitable for removal by the other methods.

My remarks have been confined to the treatment of stone in children. Later I hope to have extended statistics of recent operations at all ages, when I believe it will be found that the operation which gives the best results at one age does not necessarily do so at another, and that it is chiefly in elderly people that the suprapubic operation gives results superior to the lateral.—*British Medical Journal*, *May* 5, 1894, *p.* 959.

56.—SUPRAPUBIC PROSTATECTOMY OR McGILL'S OPERATION.

By A. W. Mayo Robson, F.R.C.S., Surgeon to the Leeds General Infirmary.

[Mr. Robson's paper contains a table of twelve cases with one fatal result, which is here omitted :]

It is only within the last decade that the operative treatment of hypertrophied prostate has received the attention it deserves, and I venture to think that to no one surgeon is the present position of the subject due so much as to my late friend and colleague, A. F. McGill, who, by a series of cases reported and shown at the British Medical Association meeting in Leeds, in 1889, clearly demonstrated that suprapubic prostatectomy was a practicable and effectual method of treatment. Both on this account and because of our desire to perpetuate the memory of our late colleague we speak of the operation in Leeds as "McGill's operation."

So far as I can see, all the minor operative procedures through the perineum and urethra have proved disappointing, and even perineal prostatotomy or prostatectomy, which has a number of advocates, shows a mortality of 13 per cent., and is only of use in the case of a projecting or pedunculated middle lobe. The experience of any one surgeon in suprapubic prostatectomy must be comparatively limited, not on account of the infrequency of prostatic disease, but because of the unsuitability of the greater number of cases for operative treatment, either on account of sufficient relief being effected by catheterism or else because of kidney or other complications rendering the subjects unfit for any major operation. Hence my reason for giving the results of my personal experience in so small a number as 12 cases ; but I should at the same time remark that my impressions are derived from a considerably greater number of cases, "about 30," which I have witnessed or taken part in, in the hands of my colleagues or other surgeons.

While it is unnecessary here to consider the subject of the diagnosis of prostatic enlargement, I may be pardoned for pointing out a method which, doubtless practised by some, is

certainly not generally employed, namely, that by means of bimanual examination, either with or without an anæsthetic, the condition of the whole of the prostate may be mapped out, and the presence or absence of other organic disease of the bladder may be ascertained. The method I usually employ is with the patient on his back, and, after emptying the bladder, to bring him to the right side of the bed, to prop his shoulders with pillows, and to ask the patient to flex the thighs; then, with the right index finger, well greased, inserted into the rectum, and the left hand well warmed placed on the hypogastric region and gently pressed backwards, the intervening bladder and prostate can be quite clearly felt, and the latter can be mapped out. If a catheter be then passed, the thickness of the middle lobe, or of the bar at the neck of the bladder, can be accurately gauged by the left hand pressing the catheter backward on to the finger in the rectum, which is then able to estimate the thickness of tissue intervening.

Next, with regard to the selection of cases. This comes under two distinct categories: (1) those not requiring operative treatment, and (2) those disqualified by other disease. Whenever a patient has no large amount of residual urine, and can be made comfortable by the passage of a catheter at night, or night and morning, and where catheterism is well borne and not difficult or distressing, operative treatment is unnecessary. In the presence of complete atony of the muscular coat of the bladder, operation is advisable if the atony be only of short duration, say a few weeks; but if the conditions have existed for many months the removal of the obstruction to the urinary outflow, even if successfully accomplished, can probably lead to very slight ultimate benefit; but I am convinced that atony of less duration can be overcome by tonics and galvanism when the obstruction is removed.

The presence of a large amount of residual urine associated with fair vesical contractility and not diminishing after regular catheterism, the patient being otherwise in fair health, is a decided indication for prostatectomy, unless the relief given by the catheter is considered adequate by the patient.

Cystitis associated with enlarged prostate, especially if catheterism is difficult and painful, is an indication rather than otherwise for suprapubic prostatectomy, as at the same time the bladder can be thoroughly purified and drained. The presence of a calculus, or of calculous material associated with prostatic enlargement and residual urine, is an indication for suprapubic lithotomy followed by prostatectomy, as at the same time it enables the bladder to be thoroughly cleared, the coexisting cystitis to be treated by drainage, and the obstruction at the neck of the bladder to be removed.

Contraindications.—The presence of advanced kidney disease, especially if associated with a greatly diminished excretion of urea; chronic atony of the bladder; glycosuria; well-marked degeneration of the blood-vessels associated with general senile debility, or other organic disease which would render any major operation inadvisable, would lead the surgeon to seek to give relief by catheterism or simple perineal drainage rather than by a more serious operation. It is unnecessary to enter into all the minutiæ of the operation, but there are certain details which I may perhaps be excused for mentioning.

Besides asepticising the skin by a previous carbolic dressing and washing out the bladder with boracic lotion, I usually like to give my patient 5 to 10 grains of boracic acid and a little saccharin twice daily for a few days before operation, so as to render the urine aseptic if possible. The rectal bag, by raising the prostate nearer to the manipulating finger, is of advantage, but I think it is important not to overdistend it, lest rupture of the rectum or inflammation in the meso-rectum ensue, and I only have 4 or, at most, 6 ounces of water introduced. The bladder is distended with boracic lotion until it can be felt above the pubes, no fixed quantity being employed. In two cases the peritoneum has been in touch with the pubes, and in one case it was so fixed to it that I had to deliberately open the serous membrane to reach the bladder, after which I carefully separated it and closed the peritoneal opening before incising the bladder, the patient being no worse for the complication.

In removing the obstruction I have found McGill's scissors or the cutting-ring forceps invented by my colleague, Mr. Jessop, to answer best for the sessile or pedunculated enlargement of the middle lobe, and for the ring-like obstruction I have used the scissors, first at one side and then at the other, so as to cut out a V-shaped portion, making a clear channel from the vessel pouch straight into the urethra, down which the finger is passed to see that the passage is clear.

If the lateral lobes are much enlarged the finger can be insinuated within the capsule and the adenoid masses can be enucleated with very little difficulty.

Lastly, all loose pieces of tissue are cut away and the parts are left as smooth as possible. In order to disturb as little as possible the cellular surroundings of the bladder the edges of the vesical opening are fixed temporarily to the margin of the wound by a suture on each side before any intravesical manipulations are commenced.

I have found suprapubic drainage efficient in all the cases, and have not thought it necessary to drain through the perineum. In the after-treatment boracic acid is given thrice daily, and the bladder is washed out once or twice daily by

syringing a solution of boracic acid through from the urethra to the drainage opening. The drainage-tube is removed if possible on the third day, and the patient is allowed to sit up within a few days of the operation. I find that as a rule recovery is attended with very little general disturbance or discomfort, and that the urine begins to be passed by the urethra soon after the patient is allowed to sit up.

In conclusion, I consider that the operation of suprapubic prostatectomy in properly-selected cases is one attended with less danger than is usually thought, and that if thoroughly and completely performed it is capable of affording such relief as may be in many instances genuinely termed a cure, and that in a class of cases which until a few years ago were looked on as incurable.—*British Medical Journal, July* 14, 1894, *p.* 63.

57.—ON A METHOD OF EXCISING THE PROSTATE.

By J. H. Nicoll, M.B., C.M., Dispensary Surgeon Glasgow Western Infirmary, &c.

In spite of several untoward possibilities there stands out the fact that in judiciously-selected and suitable cases the operation of prostatectomy in a large number of instances gives most satisfactory results. This being so, the natural endeavour is to so obviate or minimise the chances of such unfortunate results as to give the operation in the future both a better record in the restricted class of cases it is at present applied to, and a considerably wider field of applicability so as to include cases of more advanced mischief than are at present admitted. It will be obvious that such endeavour will involve attention to the following points:—(1) Prevention or lessening of the hemorrhage; (2) prevention of septic or pyæmic absorption; (3) deliberate, complete, or at least pretty extensive removal of the prostatic tissue; and (4) avoidance of extensive tearing out of portions of the bladder-neck and deep urethra. Working along these lines, after several experimental operations on the cadaver, it seemed to me that there was a method of operating by which the above ends might be more nearly attained than by any of the hitherto-published operations. This method I have had the opportunity of twice applying to actual cases, and, while it is as yet too early to express a definite opinion as to the ultimate amount of benefit obtained, the immediate results of the operation have been so satisfactory that I have little hesitation in thus early submitting it for fuller trial at the hands of those to whom opportunity may offer. Briefly, the

operation is a submucous removal of the entire prostate, or as much of it as may be deemed necessary, by a combined supra-pubic and perineal operation. The technique of the operation is as follows:—A supra-pubic cystotomy is performed; no rectal bag is employed for this on account of the subsequent proceedings. All bleeding points in the parietal incision are secured and the wound dusted with iodoform before the bladder is opened. The incision in the bladder wall must be a free one, and the wall of the viscus is secured to the skin by four sutures. The bladder is then carefully and repeatedly douched with warm carbolic solution (1 in 200), phosphatic concretions on the walls being removed with a lithotomy scoop. The viscus is then partially filled with the carbolic solution and the patient tied up in the lithotomy position. The second part of the operation consists in the removal of the prostate through a modified median lithotomy wound. An ordinary bougie or sound is passed and given to an assistant. The left forefinger in the rectum, an incision is made in the perineal raphe, and gradually deepened till the apex of the prostate is reached, but without penetrating the urethra or bladder. The rectum is carefully separated from the posterior surface of the prostate, and a vertical incision is then made through the posterior and inferior part of the prostate capsule. The capsule is then gradually shed off the gland to either side by means of some blunt instrument like a periosteum elevator, the assistant meantime pressing the prostate down into the perineal wound with his fingers, introduced into the bladder by the supra-pubic opening. (If sufficient room for this isolating of the prostate has not been afforded by the median perineal wound it may be obtained by supplementing the median incision by a lateral one, somewhat on the lines of Dittel's, and curving outwards and backwards from the posterior end of the median cut to a point between the anus and the posterior end of the ischial tuberosity, nearer the former than the latter. This may be done on one or both sides.) All bleeding points being secured, the surgeon, after carefully washing his left index finger in carbolic solution, puts two fingers of the left hand into the bladder from the supra-pubic wound, and, pressing the prostate (now pretty freely movable) down into the perineal wound, removes, by the fingers of his right hand in the perineum, the entire prostate, or as much of it as he deems necessary to relieve the neck of the bladder from all pressure, and bring it down to a level with the postprostatic pouch in the base of the bladder, judging the amount to be removed by manipulation of the parts between the fingers of the two hands. Should the prostatic tissue be more than usually tough and resistant, the fingers of the right hand may be supplemented by a blunt periosteum elevator or other similar instrument, or even

by a Volkmann's spoon carefully used. During the entire operation neither bladder nor urethra is opened further than is involved in the supra-pubic incision. After enucleation of the prostate is complete the sound or bougie is withdrawn, and a large-eyed, short-beaked metal catheter (such as a lithotrity evacuating catheter) or a large elastic-gum catheter *coudé* is introduced and tied in. The perineal wound, which forms a cavity of some magnitude, is douched with weak carbolic solution, carefully dried with gauze or sponges, and firmly stuffed with iodoform gauze. The four stitches in the supra-pubic wound are cut, and the bladder-wall thus permitted to drop away from the parietes. The after-treatment consists mainly in douching out the bladder daily with boracic or weak carbolic solution, from the supra-pubic wound into the bladder, and out through the catheter in the urethra. The iodoform packing is changed every second or third day for a fortnight and then withdrawn, and the wound allowed to close. The supra-pubic wound, which is kept covered by a pad of sublimated gamgee, also begins to close about this time, when the douching may be discontinued. Such is, briefly, the operation which has, on the two occasions on which it has been performed, given satisfaction. One or two points remain to be noticed.

(1) In neither of the cases operated on was there any intra-vesical projection of the middle lobe, but, while I know this median upward projection to be comparatively uncommon, there can be little doubt that, if the operation be repeated sufficiently often, it will ultimately be met with. In such a case the course I should follow would be to perform the operation as above described, and thereby remove all the body and lateral lobes, the really potent factors in the obstruction in the great majority of cases, neglecting for the time the projecting median vesical portion. After eight or ten days there would be little difficulty in twisting off, entire or in sections, the vesical projection through the supra-pubic opening, after reflecting from it its enclosing mucous membrane. At this stage of the case the urine has been rendered comparatively, if not quite, aseptic. Further, the cavity of the perineal wound has acquired a protective covering of granulations. In consequence of both of these circumstances the opening up of the mucous floor of the bladder is a very different thing in regard to its ultimate possibilities from the same proceeding carried out at the time of the original operation.

(2) In a case at present under my care the bladder was so much thickened and contracted from the chronic irritation of retained urine and cystitis, that I failed to raise it over the pubes by injection, and therefore felt constrained to operate by the ordinary perineal route. In future, in dealing with such

a case, I shall introduce a rectal bag, and withdraw it after the supra-pubic part of the operation is accomplished. Further, from the experience of this present case, I should feel inclined, in the event of the rectal bag failing to bring the vesical fundus over the pubes, to make the necessary incision in the parietes, and then carefully dissect down outside the peritoneum behind the pubes till the bladder was reached, rather than proceed by perineal median cystotomy. In the present case the course of events has been in my hands what I have seen in others. The opening of the bladder floor permits the foul urine to flow into the large undrained, and often undrainable, pouches formerly occupied by the lateral lobes, with every prospect of septicæmia or pyæmia. The present patient has had three weeks of high temperature, with several recurrent rigors and much local pain.

(3) In the two cases operated on, after the bladder had been opened and cleansed by the supra-pubic incision, and before the perineal incision was made, I introduced into each ureter a sterilised soft elastic gum No. 8 bougie, these to serve as landmarks ; whether this is really necessary is not quite certain. In both cases my impression is that portions of the subterminal parts of the vesiculæ and vasa deferentia were removed. This, however, even if it involved subsequent atrophy of the testes (a moot point), is of comparatively small consequence to elderly men slowly dying from prostatic obstruction and its sequelæ.

(4) In neither of the two cases was the mucous membrane of the bladder injured. It is, however, possible that at some future operation a wound or perforation in the base of the bladder may arise. In such event there is no reason why the wound should not be accurately sutured by means of a cleft-palate needle from the vesical side through the supra-pubic opening.

(5) While the catheter was retained without inconvenience in both cases, it will occur to anyone knowing anything of cystitic irritability that this will hardly be so in all cases. Should the presence of the catheter cause much pain there seems no reason why it should not be withdrawn after forty-eight hours (after which the iodoform packing need not be firmly put in), and introduced at intervals only for douching.

The advantages this method of prostatectomy appears to offer in comparison with the others are : (*a*) There is much less hemorrhage. This is but what might, *a priori*, be expected. The prostatic plexus of veins lies on the surface of the prostate (not in its substance, which is little vascular) and is consequently largely shed off with the capsule by the blunt periosteum elevator. Further, the plexus clothes mostly the anterior and lateral aspects of the organ. In approaching the prostate on the posterior and inferior surface few veins are encountered.

(*b*) The infiltration of the freshly-wounded tissues by the putrid and septic urine is avoided. In the removal of the body and lateral lobes on any adequate scale a large gaping cavity is created. In the supra-pubic operation no means of efficiently draining this exists, nor is the perineal tube introduced in the perineal or combined operation of any service in the matter, the greater part of the cavity lying below the level of the aqueduct from the bladder to the skin orifice along the tube, and thus retaining the fluid which gravitates into it. By the operation described this cavity is kept absolutely free from either putrid or putrescible urine and filled with a dry antiseptic medium. (*c*) The operation insures adequate and sufficient removal of the obstructing prostatic tissue, thereby avoiding one main source of ultimate failure to give relief to the symptoms in both the perineal and supra-pubic operations when uncombined. (*d*) By preserving the bladder-wall intact there is very much less risk of tearing out portions of the deep urethra and bladder-wall, with the subsequent possible results mentioned above. With a bougie in the urethra and two fingers in the bladder there can with due care be very little chance of removing any of the bladder or urethral wall with the prostatic tissue. Such tearing out of portions, not unknown in the supra-pubic operations, is comparatively common in both the perineal and ordinary combined perineal and supra-pubic operations. (*e*) The absence of a perineal tube permits the patient to sit up if desired within two days on a circular air or wool cushion—a most important point in elderly, feeble men.

Finally, two points seem to be worthy of mention. The operation is performed with considerably greater facility on an actual patient than on the cadaver. In enlargement of the prostate the apex of the gland comes well down into the perineal region, and is in consequence comparatively easily found.

In the difficult passage of catheters in cases of prostatic obstruction I have almost entirely given up the practice of introducing the finger into the rectum in favour of placing the fingers on the perineum and manipulating the point of the instrument from there. It is not usually difficult either with metal or soft instruments to lightly grasp the catheter stem through the bulbous urethra between the thumb and middle finger, and with the tip of the forefinger pressed into the perineum to send the point curving upwards and forwards behind the pubic arch into the bladder. Prostatic retention is perhaps of all bladder affections that one in which absolute asepsis in instrumentation is most essential, and the manipulation of catheters and douche or syringe by fingers soiled with fæces can hardly tend to secure this.—*The Lancet*, *April* 14, 1894, *p.* 926.

58.—ON THE TREATMENT OF URINARY FISTULÆ BY SUTURE OR RESECTION OF THE URETHRA.

By F. A. Southam, F.R.C.S., Surgeon to the Manchester Royal Infirmary.

Most cases of urinary fistulæ occur as a complication of stricture of the urethra, and under these circumstances they usually close after the obstruction has been removed, either by dilatation or by the operation of internal or external urethrotomy. In some instances, however, they persist after the stricture has been cured, and in other instances when met with independently of stricture, they are often of a very obstinate nature, being extremely troublesome to heal. The usual treatment under these circumstances is to scrape or cauterise the track of the fistula, pare its edges and bring them together by means of sutures, or close its external orifice, when it is of large size, by some form of plastic operation. In two very obstinate cases of perineal urinary fistulæ recently under my care, the plan adopted has been to cut down upon the urethra and freely expose their internal openings. In one, where the urethral opening was of small size, its margins were pared and then accurately stitched together by deep sutures passed only through the wall of the canal. In the other, where the opening was much more extensive, involving a considerable portion of the urethral floor, an entire segment of the canal was resected, and the proximal and distal portions, having been freed sufficiently to allow of them being brought into apposition, were sutured together. The margins of the wound in the overlying tissues in both cases were then brought together by another set of sutures, passed as deeply as possible, but not involving the urethral walls. In this way by attacking the source of the trouble, viz., by closing the opening in the urethra through which the urine escapes, the parts are placed in a more favourable condition for repair. The second case shows that primary union is not essential for success, and that complete healing may take place.

Points of importance, to which attention should be paid in adopting this plan of treatment, are as follows:—1. Sterilise the urine as completely as possible previously to operation by the internal administration of boric acid or salol, and when practicable, by also washing out the bladder with some antiseptic, *e.g.*, boric acid or perchloride of mercury, &c., in order that its contact with the wound may be rendered innocuous. 2. Separate the walls of the urethra freely from the surrounding tissues at the seat of operation. 3. In suturing the urethra include only the muscular coat, avoiding the mucous membrane,

which should be inverted. 4. In closing the external wound, pass the sutures deeply, so that they may include all the tissues down to the urethra. 5. To prevent as far as possible the urine from coming into contact with the wound, either draw it off at regular intervals, or tie a catheter in the bladder, irrigating it frequently with some antiseptic fluid, especially if there is any tendency to cystitis or to septic changes in the urine.

Case 1. *Urinary fistula; suture of urethra; recovery.*—The patient, a male aged thirty years, was suffering from a urinary fistula, the external orifice of which was situated close to the anterior margin of the anus; it had appeared shortly after an operation for fistula ani performed about five months previously. There was no stricture of the urethra, a full-sized instrument passing easily into the bladder. Though the fistula was twice scraped and cauterised, and the urine after each operation was regularly drawn off, it refused to heal. On November 29, 1893, the opening in the urethra, which was of small size and situated in the membranous portion, was exposed by laying open the fistula, and its margins having been freed and pared were brought together by several fine silk sutures. The external wound was then closed by deep silkworm-gut sutures, and the urine was afterwards drawn off by a soft catheter at regular intervals. Repair took place without any suppuration, no urine ever escaping through the wound, and the patient left the hospital at the end of a fortnight, micturition being in all respects perfect. When last seen the part remained soundly healed.

Case 2. Urinary fistulæ; resection and suture of urethra: recovery.—The patient, a male aged 35 years, was sent by Dr. Barwise, of Southport, suffering from urinary fistulæ of about eight years' duration, secondary to a stricture of the urethra, following gonorrhœa. For the cure of the fistulæ he had at different times been under the treatment of several surgeons, and though he had undergone the operations of both external and internal urethrotomy the fistulæ, which had also been laid open and cauterised, had never healed. When he came under observation there were two fistulous openings, one on the right side, the other in front of the anus, through both of which the urine escaped during micturition, causing the patient great inconvenience. The stricture, which was still present, would only admit of the passage of a No. 5 English catheter. On February 13, 1894, internal urethrotomy was performed, and the stricture dilated up to 12·15 Lister's sound. The fistulæ were laid open down to the urethra, and an attempt was made to suture the opening in the canal, which was single and situated at the bulbo-membranous portion, but this was found to be impossible on account of its large size and the indurated condition of the peri-urethral tissues. The urine was

afterwards drawn off regularly and the stricture kept dilated up to No. 12 (English size), in the hope that the fistulæ would close, but without any effect. It was therefore resolved to resect the urethra where the internal orifice of the fistulæ was situated, and then suture together the two ends of the canal.

On April 26 a full-sized staff was introduced into the bladder, and the bulbo-membranous portion of the urethra was freely exposed by a median perineal incision. This portion of the canal, including the fistulous opening, which involved the entire floor for about one-third of an inch of its length, was freely separated from the surrounding parts, this proceeding being somewhat difficult on account of the indurated condition of the peri-urethral tissues. About two-thirds of an inch of the urethra, including the fistulous opening and the portion of the canal immediately in front which had been the seat of the stricture, was then resected, and the divided ends were carefully brought together by numerous fine silk sutures. The perineal wound was afterwards closed by deep sutures of silkworm-gut. A full-sized silver catheter was tied in the bladder, but at the end of forty-eight hours it was removed at the patient's urgent request, as he could not tolerate its presence any longer, and the urine for the next fortnight was drawn off regularly by a soft india-rubber catheter. At the end of this period he was allowed to pass urine himself, a Lister's sound 9·12 being introduced into the bladder every four or five days. There was at first an escape of a few drops of urine through the perineal wound each time the urine was drawn off, and also during the first ten days after he began to pass urine himself, but the quantity gradually became less and less, until at the end of a month from the date of the operation the wound was completely healed, all the urine being passed by the natural route.—*The Lancet, July* 7, 1894, *p.* 10.

AFFECTIONS OF THE SKIN, &c.

59.—ON THE TREATMENT OF ECZEMA.

By Malcolm Morris, F.R.C.S. Ed., Surgeon to the Department of Diseases of the Skin, St. Mary's Hospital.

[The following is taken from an address on the Management of Eczema:]

The first point which I propose to consider is: Are internal remedies required in eczema? If they are, what are the precise indications which should guide us in the use of them?

My own view, stated broadly, is that as a general rule the less internal medication there is in eczema the better. If

a constitutional dyscrasia underlie the skin affection it must of course be treated on the ordinary principles of medicine; if the neurotic element be pronounced, remedies directed to the restoration of the nervous tone are obviously indicated; if the patient be broken down by want of sleep, and the exhaustion consequent upon prolonged suffering, sedatives and general tonics will be required; similarly if there be disorder of the digestive apparatus this must be rectified by appropriate measures. Where, however, there are no definite indications of the kind that have been referred to, I am strongly of opinion that internal medication is not only useless, but positively injurious by disordering the digestion. In an ordinary chronic eczema, where the patient's health appears to be unaffected, and there is no reason to suspect constitutional dyscrasia, I trust entirely to local treatment. Where internal remedies are given the selection of the particular drugs employed must be governed by certain definite indications. When the lesions are acutely inflammatory in character, I find antimony most valuable. I begin by giving ℥x to xiij of the vinum antimoniale, repeating the dose in an hour, and, if need be, again two hours later. The interval between the administrations is gradually increased, the dose being at the same time reduced till one of ℥vj is reached. This should be given thrice in the twenty-four hours until a distinct subsidence in the intensity of the inflammation becomes manifest. The indication for antimony is the presence of arterial tension; on the other hand, depression is a positive contraindication of this drug. I am aware that a freer use of antimony has been recommended by some practitioners, but my own experience has not led me to see any necessity for larger doses than those which have been mentioned. If a neurotic element is clearly present in the case, sedatives and nerve tonics must be combined with local treatment. In such cases the sheet anchor is opium, under the influence of which the patient should be kept almost continuously until the nerve storm subsides. In such cases I have often found it of the greatest advantage to begin the treatment with a full dose of calomel, and afterward the constipating effect of the opium should be counteracted by the administration of a saline aperient, such as Carlsbad salts, Friedrichshall, &c., every morning. If opium disagrees, some other sedative, such as sulphonal, must be substituted. The indication for the use of sedatives is great nervous excitement, accompanied by sleeplessness.

If, on the other hand, the neurotic element shows itself in the form of depression nerve tonics are indicated; of these the most useful, on the whole, in my hands has been quinine. This may advantageously be combined with opium. If there be much

discharge belladonna may usefully be combined with the quinine. Phosphorus is another drug of great value in counteracting nervous depression in these cases, and strychnine also often does good. Arsenic, though undoubtedly useful in some cases, is far from being a specific in eczema, and if injudiciously used will do harm instead of good. The indication for its use is deficiency of nerve force combined with absence of acute inflammation in the lesions. If the eruption be of an actively inflammatory type arsenic is positively contra-indicated. If the disease process shows a marked tendency to frequent exacerbations, ergotin may be useful by the control which it exercises over the vasomotor apparatus.

Malnutrition, weakness, and anæmia are indications for cod-liver oil, and general tonic treatment on ordinary principles. Iron, however, is contra-indicated by the presence of acute inflammation; in such cases it adds fuel to the flame. Of course, if any definite source of peripheral irritation is discovered it must, if possible, be removed. In women, menstrual derangement or uterine disease must be remedied, and hysteria or the disturbances incident to the climacteric period must be combated by such remedies as musk, valerian, &c.

Influence of diet in eczema.—I may frankly state that my own view is that diet has no influence at all except indirectly. Thus, if a constitutional condition such as gout or diabetes underlie the eczematous process, of course the dietetic restrictions indicated in the circumstances are called for. Again, if the lesions are of an acutely inflammatory type, the diet should be limited in quantity, and bland and non-stimulating in quality. Apart from these indications, I have seen no reason to think that restrictions of diet had any good effect; on the contrary, I have seen a "lowering" regimen do positive harm by weakening the patient. The true principle in the management of eczema, as far as diet is concerned, is to let the patient take such food as he finds most suitable to his digestive powers. Anything, however, which disorders the gastro-intestinal tract, or which causes acidity, insomnia, flatulence, palpitation or vasomotor disturbance must be avoided. The same principle applies to drinks; but here, it is almost needless to add, strict moderation in quantity is necessary. It is only in acute forms that beer is contra-indicated, as are all other beverages likely to cause flushing. I place no restrictions on my patients in the use of tea or coffee, unless these beverages are contra-indicated by definite ill-effects on the digestion or nervous system. In short, as far as diet is concerned in eczema, I am disposed to say with Bacon in his essay *Of Regiment of Health*, "A man's owne observation, what he findes good of and what he findes hurt of, is the best physicke to preserve health."

The local treatment of eczema.—It is impossible here to go into the details of the local treatment of eczema of different forms and in different situations; this is the less necessary as my methods have been fully described elsewhere. Speaking generally, I treat every case as if it were of parasitic origin. Even if micro-organisms are not the exciting agents in the causation of the process in all cases, parasitic irritation always comes into play sooner or later as a secondary factor, and requires to be appropriately dealt with. The objects which I aim at in the local treatment of eczema are, first, to destroy micro-organisms; secondly, to protect the inflamed surface from the air and from further microbic invasion; thirdly, to soothe irritation. The general principles which guide me in the application of local remedies are, first, to temper the strength of the remedy to the tolerance of the patient's skin; and, secondly, to keep the remedy continuously in contact with the affected parts. I therefore begin with a very weak parasiticide, and feel my way towards the use of stronger applications, with the most watchful care not to cause any irritation. The best remedy for local use in dry, chronic eczema, especially of seborrhœic origin, in my experience is sulphur, and next to that I place resorcin. Both these drugs have this special advantage, that they not only destroy the micro-organisms on the surface of the skin, but give rise to exfoliation of the horny layer, and bring away with it the microbes which have penetrated to the deeper parts of the epidermis. I use at first an ointment composed of 10 grains of precipitated sulphur, or the same quantity of resorcin in ℥j of zinc ointment or some other soothing application; the amount of the anti-parasitic agent is increased very gradually. When the inflammation is acute, ichthyol is particularly useful, as it is a vascular sedative as well as a parasiticide. Other antiparasitic remedies which are of service as applications in eczema are salicylic acid, white precipitate, boracic and carbolic acid. I use them with cooling "creams" as vehicles when there is much irritation. For the continuous application of local remedies in limited areas of chronic character, I have found nothing so useful as the plaster mulls devised by Unna, those I find most generally useful being carbolic acid and mercury, and oxide of zinc.

When discharge is profuse I wash the part with a weak solution of boracic acid, afterwards drying it with muslin bags containing starch and powdered boracic acid, or with flour mixed with a small quantity of the same antiseptic. If itching is troublesome, I find weak lotions of carbolic acid or tar most beneficial. For very persistent chronic eczema of the flexures I have frequently had good results from chrysarobin.

I may sum up the principles on which the local treatment of eczema should be conducted as follows: Soothe when the

inflammatory process is acute; stimulate when it is chronic; and in either case keep the parts under the continuous influence of antiseptics and parasiticides, of a strength carefully regulated in accordance with the intensity of the disease and the sensitiveness of the skin.

Change of climate is often productive of good, especially if accompanied by complete rest of mind as well as body. I know of no special indications in respect of climate, except that eczema, being a catarrhal disease, it will be well to avoid climates which are apt to produce catarrh of any kind. A too bracing climate should be avoided.

As to waters, in estimating their usefulness, the effect of the change of scene and surroundings which a visit to a spa involves must be taken into account, as well as the chemical constitution of the springs. In my experience they are beneficial chiefly, if not so solely, in obstinate chronic cases. In selecting a spring for a particular case we have not much in the way of definite indications to guide us. The alterative influence of spas in eczema is a large subject, and I can only touch on it here in the most cursory way, leaving it to others of large experience in this particular direction to give us the benefit of the knowledge so gained. On the whole, the sulphur springs—especially those of Harrogate and Strathpeffer—are best for external use; if there be a marked tendency to acute inflammation they are apt to aggravate the disease. The internal use of sulphur waters is particularly indicated in cases in which gout or rheumatism underlies the skin affection. Chalybeate and arsenical waters are useful in cases in which general tonics are indicated. The St. Victor Spring at Royat is one of the richest both in iron and in arsenic, and is therefore particularly useful for eczema in anæmic patients. Of the purely arsenical waters, the most useful in eczema are those of La Bourbole and Levico. The alkaline waters of Vichy and Ems have not seemed to me to be of any particular use in cases of eczema even in gouty subjects. In many cases the waters of Bath do good. The springs which I have mentioned are those which in my own hands have proved of greater service in cases of eczema.

I may sum up my own conclusions as to the utility of springs in the following propositions:—(1) No spring known to me has any specific action on eczema; (2) Such virtue as sulphur waters externally applied possess is due chiefly to the parasiticide action, and partly to the temperature at which they are applied; (3) Such virtue as sulphur, chalybeate, or arsenical waters possess when taken internally is due to their action in quickening the processes of metabolism, increasing the number of red corpuscles in the blood, and giving tone to the nervous system.—*British Medical Journal, September* 22, 1894, *p.* 646.

60.—ON THE TREATMENT OF ACNE VULGARIS.

By Stephen Mackenzie, M.D., F.R.C.P., Physician to the London Hospital.

[The following is taken from an address on The Etiology and Treatment of Acne Vulgaris:]

In my opinion we should concentrate all our efforts in the treatment of acne on local measures. We may divide the local treatment into two heads:—(1) Preventive treatment in those predisposed to acne; (2) the treatment of the developed disease.

Preventive Treatment.—This is obviously of the highest importance, but it is that which has received the least attention. It is desirable to keep clearly in mind what has to be attempted in the case of persons who are from the conformation of their skin liable to acne. Persons who are merely liable do not as a rule take medical advice, but careful mothers do sometimes consult us because they notice their children's complexions are losing their natural appearance. Again others consult us for only very slight acne, and, lastly the preventive treatment is involved in the advice we give to those who have been under treatment for acne, and are so far improved that they are dismissed by their medical advisers or discontinue attendance. The objects we have to keep in view in the local preventive treatment are threefold:—(1) To remove the superfluous seborrhœic secretion, and exercise a dermatolytic action on the epidermic accumulations in and at the mouths of the sebaceous ducts; (2) to stimulate the sebaceous glands into healthy activity; (3) to keep the skin aseptic and thus prevent the pus cocci from gaining admission to the mouths of the follicles.

Fortunately we have in our hands at the present greatly increased, and really effective, means of accomplishing these results. In medicated soaps we have powerful and convenient therapeutical remedies, cleanly and convenient in their use, and free from all objections. In my opinion the profession is under a real debt of gratitude to Dr. Eichhoff, of Elberfeld, for the painstaking efforts he has made to extend and perfect the treatment of disease by means of medicated soaps. Until Dr. Eichhoff, at the instigation of Dr. Unna, took up the subject, and entrusted the manufacture of soaps to Ferdinand Mühlens, of Cologne (Mr. R. J. Reuter, 62, New Bond Street, is the London manager), under his own supervision and guarantee, there was no certainty as to the composition of medicated soaps, and therefore no precision in their use. Dr. Eichhoff has written fully on the subject, explaining the mode of manufacture, the exact composition of each soap, and the indications

for their use. These soaps are made in two forms—cake soaps and powdered soaps—and of each kind there are many varieties. Moreover, most kinds are made with three soap bases—superfatted, neutral, and alkaline. I shall confine my observations, of course, to their employment in acne and its prevention. I have recently been trying these soaps with satisfactory and encouraging results. The alkaline soaps are generally indicated in the prevention and treatment of acne, on account of their greater activity in dissolving the fatty matters on the skin and removing epidermic accumulations, and the natural peculiarity of the skin in persons suffering from acne allows of the use of these stronger soaps, which would irritate more delicate skins. There are four ways of using these medicated soaps :—(1) Simply for washing; (2) rubbed into the skin with a piece of flannel or woollen cloth; (3) rubbed into the skin and allowed to remain; (4) rubbed into the skin and then covered with a watertight dressing.

These methods are given in the order of their activity. The most useful of the cake soaps for the prevention of acne are the alkaline camphor-sulphur—Peruvian balsam soap and creolin soaps, and the alkaline brimstone and the alkaline sulphur powdered soaps, and creolin powdered soap; and the neutral salicylic sulphur, the salicylic resorcin-sulphur powdered soaps. The face should be steamed or bathed with hot water previous to the application of the soap, and hot water used in making the lather. The soap should be simply used for washing, rubbed in and afterwards washed off; allowed to remain on, with or without a watertight dressing, according to the activity of treatment demanded. Brisk towelling is also of service in exciting the languid vascularity of the skin and in compressing the glands and aiding in the expulsion of the sebum from the ducts. It is needless to say the treatment must be as persistent as the condition which calls for it, and it is of the greatest importance to urge this on those who are, or are liable to be, sufferers from the disease.

It will be seen that in the soap treatment we have fulfilled all the conditions I indicated as necessary to prevent acne. The soap bases, especially the stronger and alkaline forms, dissolve and wash away any sebaceous excess on the surface of the skin, and in the more powerful modes of using the soap alluded to, penetrate the surface and act on the contents of the sebaceous follicles. At the same time, the dermatolytic action of the soap dissolves the imperfectly evoluted epithelial cells in the follicles and the epidermic accumulations at the mouths of the follicles. The bathing with hot water or steaming, rubbing in the soap with a flannel or flesh-glove, and the towelling afterwards must have a decided influence

in stimulating the sebaceous glands, an influence which is further aided by the various medicaments, such as sulphur, camphor, Peruvian balsam, &c., incorporated in the soap. Lastly, and as I believe one of the chief effects of these medicated soaps is their efficiency in keeping the skin aseptic, in preventing the staphylococcus pyogenes from penetrating the mouths of the follicles, and thus preventing the occurrence of pustulation. It may be safely asserted that, if we can free the skin from the bacteria which excite inflammation and suppuration, we shall remove one of the two factors in the production of acne; the other and mechanical one, which leads to plugging of the ducts of the glands, we have already seen is also remedied by the action of the soap as a soap. Sulphur, camphor, salicylic acid, Peruvian balsam, resorcin, brimstone, creolin, &c., are all parasiticides, and the activity of these remedies is greatly increased by the penetrative action of the soap. Probably if these soaps are regularly used by those predisposed to acne, comedones will not form, but if they do they must be removed by the usual methods.

The Treatment of Acne.—It is well here also to lay down the principles to be kept in view in dealing with a case of acne. These are:—(1) To remove the plugs which occlude the sebaceous ducts, and the epidermic accumulations about the mouths of the follicles; (2) to subdue any existing inflammation; (3) to remove the conditions which, if allowed to remain, will lead to a recurrence of the disease.

To the first end all comedones should be removed by expressing them. The soap treatment, described under preventive treatment, is also of great value and importance. When the skin is irritable from inflammation, the milder soaps are indicated in the superfatted forms, as the superfatted menthol soap or the superfatted menthol eucalyptol soap. The use of the soap implies the use of hot water to the affected parts by bathing and steaming.

All pustules should be opened at once, and the acne lancet is much less formidable in appearance than a sharp-pointed bistoury, and quite efficient in deep-seated acne pustules. No cases give more brilliant results than the worst cases of acne indurata treated by puncture of every indurated pustule—as long as the patient remains under medical care; but of course such cases are prone to relapse when it is discontinued unless the preventive treatment already advised is carried out. Some persons will not consent to have the pustules opened by the medical adviser, and it is almost impossible to get the patient or relatives to use the acne lancet. When this is the case I often recommend and employ the method introduced by Dr. Walter Smith, of Dublin, of touching every pustule with

a drop of liquefied carbolic acid, and then covering each spot with collodion. For the inflammation which often occurs in the skin around and between the inflamed sebaceous glands, any of the soothing applications in general use may be employed. The most efficient plan, and that least inconvenient to the patient, is to use ointments at night and lotions in the day time. The benzoated oxide of zinc ointment, carbonate of zinc made up with cold cream, ointment of the glycerine of subacetate of lead, and boric acid ointment, are all good applications for night use; and a calamine lotion an efficient and inconspicuous remedy for use in the day time. When the inflammation of the skin around the acne lesions is only slight or absent, we may make use of stimulating ointments such as sulphur, at night. Belladonna is also of much service in some cases. Two drachms of the extract made into an ointment with lano-vaseline, or added to oxide of zinc ointment may be used, and it may be used stronger, or the simple extract of belladonna rubbed into the skin in obstinate cases, care, of course, being taken that none reaches the eyes. The ointment should be washed off in the morning and a calamine or creolin lotion used afterwards. Sulphur in powder or suspended in eau de Cologne is also a good day application. I have not found any good from the internal administration of calx sulphurata (commonly called sulphide of calcium), and have discontinued its use. When we have got rid of all or most of the active lesions in a case of acne, we have to fulfil the third indication of treatment, namely, to remove or prevent the conditions which if allowed to remain, will lead to a recurrence of the disease. This is done by advising the patient to carry out what I have called the preventive treatment by means of medicated soaps, so as to remove superfluous sebaceous secretion and accumulations in the ducts, to stimulate the glands, and to keep the skin aseptic.

It will thus be seen that I trust to local measures, and local measures alone, in the prevention and treatment of acne. Unless these are appropriate and are carefully and sedulously carried out acne is apt to be a very troublesome and lasting disease. In any case where there is a predisposition to it it must be impressed on the patient that this is an enemy which can only be kept at bay. Unfortunately this is a difficulty which it is useless to ignore in securing the necessary continuity of treatment, and thus acne remains an opprobrium of medicine. I have said nothing about the constitutional treatment of acne, believing, as I do, that it is neither necessary or useful. Of course, we should treat any maladies from which our patients are suffering, for it is our duty to endeavour to make our patients as well as we can in every respect. It is, however, of great importance that we

should keep clearly in mind the difference between curing our patients of dyspepsia or amenorrhœa, or dysmenorrhœa, and the acne from which they may be simultaneously suffering. But unless we treat the local disease by effective local treatment we shall never deal successfully with acne.—*British Medical Journal, September* 29, 1894, *p.* 689.

61.—THE RADICAL TREATMENT OF LUPUS.

By Leonard A. Bidwell, F.R.C.S., Senior Assistant Surgeon to the West London Hospital.

After considering the pathology of lupus, and its behaviour after all other methods of treatment, the conclusion must be arrived at that a complete and free excision, involving the whole thickness of the skin, is the ideal treatment. Until recently, excision was only possible in the case of small patches of the disease, where the edges could be brought together with sutures after the operation, for the tediousness of healing by granulation and subsequent cicatricial contraction prevented such treatment for patches of any considerable size. The combination of immediate skin grafting after Thiersch's method with free excision enables the surgeon to radically treat patches of lupus of any size. Small parts of a patch were treated in this way by Professor Thiersch in 1889, but he took five or six sittings to complete the removal of the lupus. I believe that Mr. Watson Cheyne was the first to perform such an operation in this country, and some of the first cases so treated were shown at the Medical Society of London, in March last year, by Messrs. Watson Cheyne, Bruce Clarke, and myself. At the meeting of the British Medical Association at Newcastle, I communicated a paper on this treatment for lupus, and I think that many surgeons have now given it a trial. With regard to the operation itself, one of the most important factors in its success is a very strict attention to antiseptics; this is the only way to ensure the vitality of the extensive skin grafts. The lupoid patch and surrounding skin should be thoroughly disinfected on the day before the operation, and a "packing" of gauze soaked in 1 in 20 carbolic acid solution should be kept on all night. The part from which the grafts are to be taken should be similarly prepared. The patient must be placed under an anæsthetic, and an incision is made down to the subcutaneous fat all around the lupus, about a quarter of an inch from its margin. The whole thickness of the skin, together with the subcutaneous fat, is then dissected off, the bleeding points are clamped with pressure forceps, and sponge pressure applied. While the bleeding is being stopped the grafts should be cut; for this purpose

I employ a special razor with an extra wide blade, on which a long ribbon-like graft can curl up when cut. The skin over the front of the thigh, which is the preferable part, is held tight by an assistant, and the surface moistened with 1 in 4,000 mercuric chloride solution, while the grafts are cut; the grafts usually measure from 1 inch to 4 inches in length, and about 1 inch in breadth; they include the epidermis, the rete mucosum, and the tips of the papillæ. The grafts are slid off the razor on to the wound or on to the surrounding skin, which has previously been moistened with warm antiseptic solution, and are pushed into position with a probe, care being taken that their edges are uncurled, and that they overlap the margins of the wound and each other. The wound is dressed with a piece of gauze protective tissue and cyanide gauze; this does not require changing for a week, when in most of the cases the wound is found to be practically healed. The part from which the grafts have been taken is similarly dressed, and being merely an abraded surface, heals within ten days without any cicatricial contraction. The following eight cases were treated in this way at the West London Hospital:

Case 1.—A girl aged 19 years, with an ulcerated patch of lupus measuring 4 inches by 3 inches on the inner side of the left thigh. This had existed six years. It was freely excised and grafted on October 20, 1892. Now the new skin is quite supple, and there is no recurrence.

Case 2.—A woman aged 37 years, with a patch of lupus on the right shoulder measuring $6\frac{1}{2}$ inches by $4\frac{3}{4}$ inches. It had existed as long as the patient could remember, and had been treated by scraping, caustics, and salicylic acid plasters. This was completely excised on December 20, 1892, and grafted; a slight recurrence at one margin appeared six months later, and was excised on August 20, 1893. She is now able to do her household work, and is pleased to be rid of a disease which had existed thirty years or more.

Case 3.—A girl aged 18 years, with a patch of lupus on the left cheek measuring $1\frac{1}{2}$ inches by $2\frac{1}{2}$ inches. This had existed fourteen years, and had been scraped six times; it was freely excised on April 21, 1893, and grafted. The scar is now scarcely noticeable, and there is no recurrence.

Case 4.—A girl aged 24 years, with an ulcerated patch of lupus on the left cheek measuring 3 inches by 2 inches. This had existed thirteen years, and had been treated with caustics at intervals for eight years. It was excised on April 24, 1893, and grafted. She is now quite well.

Case 5.—A boy aged two years, with a patch of ulcerated lupus on the tip of his nose, and with other patches on the arms and thighs. This had existed for one year and nine months;

the patch on the nose was excised and grafted on August 22, 1893. The scar now cannot be seen, and there is no recurrence.

Case 6.—A boy aged 16 years, with lupus involving the whole of the right cheek, extending over the bridge of the nose up to the eyelid, and downwards below the angle of the jaw. It measured $5\frac{1}{2}$ inches by $4\frac{3}{4}$ inches, and had existed eleven years. There was another patch of lupus on the right shin, which measured $2\frac{1}{2}$ inches by 2 inches. Both patches were freely excised on December 22, 1893, and grafted. There is no recurrence, and the only deformity is some retraction of the angle of the mouth.

Case 7.—A boy aged 16 years, with lupoid patches on the right shin which had existed two years. This was excised and grafted on March 2, 1894. He is now well.

Case 8.—A boy aged 8 years, with two patches of lupus on the face, one below the chin and the other on the right cheek. The patch below the chin had existed four years, that on the cheek for only two years. Both patches were freely excised on March 16, 1894, and grafted.

The result of these cases is, I think, highly satisfactory, although a slight recurrence had taken place in Case 2, which is explained by the fact that I did not carry my incision far enough away from the margin, and so left some doubtful skin. When the grafts do not all "take," the intervening portion heals quickly by granulation, giving rise to a raised cicatrix, however, which of course contracts strongly; the scar left after grafting does not show the same tendency to contract, since no granulations are developed in the process of healing (the contraction of a cicatrix being directly dependent on the amount of granulations formed). To illustrate this point I may mention that the movements of the arm in Case 2 are quite free, and that in Case 6 there is no ectopion, although the whole cheek has been removed. The new skin is unsightly at first, but after a time becomes supple and movable over the deeper tissues; in fact, in some cases I have grafted directly over tendons without impairing their movements. Ordinary sensation quickly becomes established in the new skin, and after a few months it is difficult to find any difference between it and that of the surrounding skin.

Some sections of this new skin formed from Thiersch's grafts have been made for me by Dr. Abraham. They were taken from the patient in Case 2 when a recurrence was removed nine months after the original grafting. While in sections of cicatrices after healing by granulation one sees only layers of squamous epithelium resting on dense fibrous tissue, in sections of skin formed from Thiersch's grafts, on the other hand, there are numerous well-developed papillæ, and a true cutis rather

rich in cells. The epithelium, too, resembles that of normal skin ; numerous vessels were seen in the new cutis, but nerve endings have not been demonstrated. This development of a new cutis is to be accounted for by the ingrafting of the tips of the papillæ with the epidermis, and explains the absence of cicatricial contraction after grafting. I think that all will agree that this method of treating lupus is more successful than the older ones, but time, of course, must elapse before one can say that a case is absolutely satisfactory, yet I am sanguine enough to believe that the treatment will be successful, for it is based on a sound clinical and pathological basis.

Note.—Since writing the above I regret to say that a fresh recurrence has occurred in Case 2, and that, too, in the centre of the cicatrix. At the first operation I noticed that the subcutaneous fat was altered in consistence, so I would suggest that the lupoid tissue had even at that time extended below the part removed. I do not think that the fact of this recurrence should be used as an argument against this method of treatment, but it should induce one to excise the parts more freely. Another *contretemps* has occurred in Case 8, where the lupoid tissue on the chin extended deeply, down to the bone. The cicatrix assumed a keloid condition, and after contracting slightly, became bound down to the bone ; this caused eversion of the lip, with dribbling of saliva, which, however, has been remedied by the transplantation of a flap of skin beneath the lower lip. This patient, too, returned to hospital with tuberculous teno-synovitis on the dorsum of the foot, which I operated on with a satisfactory result. Instead of the gauze protective tissue which I have used in nearly all the above cases, I now propose to use next to the wound some gauze made out of spun glass, which has been supplied by Messrs. F. Walters & Co. I think that the grafts will not adhere to this, and so there will be no risk of detaching them during a dressing ; at the same time the gauze, being of loose texture, will allow any blood or discharge to escape into the dressings.—*The Lancet, July* 21, 1894, *p.* 130.

62.—ON LUPUS AND ITS RELATIONS TO OTHER FORMS OF TEGUMENTARY TUBERCULOSIS.

By Prof. H. Leloir, M.D., Lille.

The idea of a definite cutaneous affection was first attached to the term "lupus" by two English dermatologists, Willan and Bateman. Up to the year 1887 there was no true definition of lupus. At this time I propose to define lupus as a slightly virulent form of tegumentary tuberculosis whose elementary lesion is a tubercle, reddish-brown in colour, of soft consistence,

evolving slowly, destroying tissues either by interstitial absorption or by ulceration or by sclerosis. Lupus may invade all regions of the skin and adjacent mucous membrane. It begins generally in infancy, and produces partial or general infection.

The *lupoma* or elementary lesion may take the form of a nodule or of diffuse infiltration, *lupus nodulaire* and *lupus en nappe*. *Lupus en nappe* is formed by the confluence of tubercle nodules and diffuse infiltration. Unfortunately there still exists considerable disagreement in the opinions of dermatologists as to the exact nature of lupus. According to some, lupus is a cutaneous form of scrofula. Others admit a scrofulous lupus and a syphilitic lupus, while the Austrian school maintain that lupus constitutes a special affection absolutely distinct from scrofula and syphilis. This opinion is maintained by Virchow, Baumgarten, and Klebs. The French school have firmly maintained the scrofulo-tuberculous nature of lupus, a view which is now steadily gaining favour with the English, German, and Austrian dermatologists, and is supported by a vast amount of clinical, pathological, and experimental evidence.

All forms of tegumentary tuberculosis are the result of inoculation of the integument with the tubercle virus. This inoculation is most frequently direct and of external origin, especially in the case of lupus and its atypical varieties. In some cases it is of internal origin, and in some way metastatic.

The clinical aspects of tegumentary tuberculosis varies immensely according to the mode of infection, the anatomical and regional seat of the inoculation, the quantitative, and perhaps also the qualitative, nature of the virus, the combination of this virus with other pathogenic microbes, the degree of receptivity of the skin for the tubercle virus, and the general and local reaction of the individual inoculated, &c. But these clinical forms, so polymorphous in their aspect, have essentially the same nature, and the careful observer will often be able to detect transition forms, proving their identity of origin.

The different varieties of tegumentary tuberculosis may at present be classified as follows :

(*a*) True lupus, non-exedous and exedous. (*b*) Atypical varieties of lupus :—(1) Lupus vulgaris colloide ; (2) Lupus vulgaris myxomatosus ; (3) Lupus vulgaris sclerosis and demi-sclerosis ; (4) Lupus vulgaris erythematoid. (*c*) Scrofulo-tuberculous gummata, dermic and hypodermic. (*d*) Ulcerative tuberculosis :—(1) Secondary ulceration (type Vulpian, Coyne, Jahrisch, Vidal) ; (2) Primary ulceration (type Schmann, Hanot, Lefevre). (*e*) Mixed tegumentary tuberculosis resulting from a combination of two or more of these varieties.

From a prognostic and pathogenic point of view the tegumentary tuberculoses may be divided into primary and secondary,

according as they constitute the first tuberculous centre in the patient, or are secondary to other tuberculous manifestations. The term lupus may be preserved, just as we retain the word scrofulo-tuberculosis, because in its classical example it presents special characters which distinguish it from other varieties of tegumentary tuberculosis. These characteristics are sufficient to constitute a special group of the cutaneous tuberculoses.

From a clinical point of view lupus is distinguished by the particular aspect of its lesions (lupomata), by its chronicity, extensive course, its appearance generally in childhood, its extensive rarity in certain territories frequently invaded by "true tuberculosis," for example, the tongue, vulva, anus, the mucous membranes of the external genital organs of man, &c. Lupus is further remarkable for the concurrence of good health which the patients enjoy, the difficulty with which it produces general infection, as is shown by the fact that vast areas of the skin may be infected with lupus for years without the disease producing general inoculation.

Histologically, lupus is remarkable for the number of giant cells by a less rapid caseification, by a more abundant vascularisation than "true tuberculosis."

Bacteriologically, lupus is distinguished by the small number of tubercle bacilli which it contains. Finally it is distinguished experimentally by the very special technical conditions under which its products are transferable from one animal to another. These variations need not surprise us, if we bear in mind the paucity of bacilli present in lupus, the poorness of the skin as a soil for tubercle, the temperature of the skin below the optimum temperature of the tubercle bacilli, and possibly the continual movements of the skin ; the condition of unrest being, as Koch has shown, unfavourable for development of the microphytes.

We may thus conclude that the special characters of lupus depend on the microphyte and on the soil which maintains it. This fact enables us to comprehend more clearly two clinical phenomena well worthy of our notice. When a deep tuberculous focus travels to the cutaneous integument, its manifestation in this external position takes the form of lupus vulgaris, as was shown by Neisser, Schuller, Volkmann. On the other hand, it is almost impossible, as Michelson has pointed out, to trace accurately the limits which separate lupus of the mucosa from tuberculosis of the mucosa, because it is only in the cicatrices that we find the characteristic lupus nodule when this disease attacks the mucous membranes.

Although the classical type of lupus has special characters of its own, it is impossible to deny the close relationship which exists between its atypical form and the other varieties of tegumentary tuberculosis. Thus tuberculous gummatous lupus

passes insensibly into scrofulo-tuberculous gummata. Lupus papillomatosus and lupus sclerosis in certain of their varieties cannot be distinguished from certain tuberculoses of external origin, for example, anatomical tubercle (tuberculosis verrucosa cutis). Certain exceptional forms of ulcerative lupus rich in bacilli present close analogies with the so-called true ulcerative tuberculosis of the integument. On the other hand, we sometimes see true tuberculosis of the skin and mucosa which closely resembles lupus. We not infrequently meet with the several varieties of tegumentary tuberculosis in the same subject, sometimes occurring simultaneously (which is rare), but generally successively, lupus vulgaris of the ordinary type being followed by the sclerosed or papillomatous variety, by scrofulo-tuberculous gummata, with their complications, lymphangitis, tuberculous adenopathies, or even by true tuberculosis of the integument.

Lupus may be derived from other forms of tuberculosis, such as glandular tuberculosis and tuberculosis of the joints and bones. It may be derived even from visceral tuberculosis, either of the patient himself or some other patient. Conversely, lupus may terminate in visceral and general infection of the subject. Histologically the lupoma cannot be distinguished from the tuberculoma, notwithstanding the researches of Baumgarten and Grancher. The pathogenic processes are merely more rapid and more pronounced in tuberculosis than in lupus. The specific element—namely, the bacillus—is present in both, though less abundant usually in the lupoma.

Since 1882 I have proved beyond all doubt the inoculability of lupus. The failure of the experiments of some authors depends upon faulty methods. Arloing's distinction (1888) between the products of scrofula and those of true tuberculous (namely, that the former were virulent only to the guinea-pig, while the latter were virulent to both the guinea-pig and the rabbit) breaks down as regards lupus, which can be transferred to both these animals. My opinion has subsequently been confirmed by White, de Renzi, Nocard, and even by Arloing himself.—*British Medical Journal, September* 8, 1894, *p.* 517.

63.—ON GALLANOL IN PSORIASIS.

By F. H. Barendt, M.D., Medical Officer to St. George's Hospital for Diseases of the Skin.

This medicament was introduced into dermato-therapeutics by Drs. Cazeneuve and Rollet, who published the first record of its application in the *Lyon Médical* for April, 1893. Gallanol is obtained by the interaction of aniline and gallic acid. An

abstract of their paper appeared in the Dermatological Periscope of the *Provincial Medical Journal* in the following June, and in consequence of their statements I decided to try gallanol. They made use of it in psoriasis and eczema, but my experience has been confined to the former, for I think we already possess a sufficient variety of medicaments for the treatment of the latter.

It was owing to the disadvantages attending the use of pyrogallic acid and chrysarobin as remedies for psoriasis that induced Drs. Cazeneuve and Rollet to discover some preparation similar to pyrogallic acid, but unattended with its dangers. Jarisch introduced pyrogallic acid, or pyrogallol, as a remedy for psoriasis. Unfortunately for out-patient practice, its usefulness is curtailed on account of its toxic effects—gastro-intestinal disturbance, hæmoglobinuria. Where the patient is constantly under the care of the physician, the use of Jarisch's ointment can be properly safeguarded. Chrysarobin, in addition to the dermatitis that may follow its too free application, stains linen—a serious drawback not only in out-patient but also in private practice. Gallanol is devoid of these disadvantages. It excites no inflammation, does not stain linen, and has no perceptible odour. The French physicians used it in the form of a dusting powder, with talc, in cases of moist eczema, and as an ointment, varying from 3 to 10 up to 25 per cent., with vaseline, as a vehicle in psoriasis. Gallanol may be thus applied to any part of the integument, including therefore the face and scalp, without any inconvenience.

I shall now mention my own experience of gallanol. I have not used it in any inveterate cases, for the simple reason none have presented themselves for treatment; all my cases were either children or young adults, and in all the psoriasis was moderate. By this, I mean the efflorescences were not crowded together, they were of the guttate type; on the other hand, the eruption was generally universal, *i.e.*, the integument of trunk, extremities, and face, and the scalp were implicated. In none did I notice any untoward symptom whatever, either local or general. As a rule, I have used benzoated lard as the vehicle, for I believe that this, as an ointment basis, is inferior to none, and I order the gallanol to be dissolved in the heated vehicle, not mixed, as the ingredient is better dispersed through it. As regards strength, I have commenced with 2 per cent., increased it up to $12\frac{1}{2}$ per cent., *i.e.*, 60 grains to the ounce of benzoated lard. For patches of psoriasis, liquor gutta-percha, B.P., is a preferable vehicle; the gallanol here is in the proportion of ℥j ad. ℥j. The chloroform evaporates and leaves a pellicle of gutta-percha containing the medicament in contact with the eruption. This application is best worked into the patch by means of a stencil-brush.

The duration of treatment, reckoning from the time the patients first came under observation to the time when the skin was free from psoriasis, *i.e.*, when the spots were just noticeable as stains, was on the average six weeks. Naturally this depended upon the extent of the eruption, and upon the assiduity of the patient in carrying out his instructions. During this period no internal treatment was used. Therefore, neither colchicum nor alkalies, nor potassium iodide, nor arsenic, nor any other drug that is supposed to influence the diathesis of which psoriasis, according to some, is an expression, were prescribed. The following method was uniformly carried out:—

Green soap was used ointment-fashion at night time; it was well rubbed into the eruption, the hand, if necessary, moistened with water to facilitate friction. Green soap—sapo viridis (P.G.)—differs from sapo mollis in being made from potash and linseed oil instead of olive oil. It is considered to be a better detergent than sapo mollis (B.P.). In the case of the scalp and face, spiritus saponis alkalini was used. (Hebra's formula is ℞ saponis viridis, 100 grms.; solve leni calore in spiritus vini, 200 grms. Filtra et adde olei lavandulæ, olei bergamiæ, aa 3 grms. M/S. Lotio.) By means of a piece of moistened flannel sprinkled with this lotion the face and scalp were well rubbed for five minutes. The patients were ordered to time themselves, then the parts were thoroughly douched with hot water, and dry-rubbed. In cases where the scales in the scalp were thick, liquor potassæ was painted on during their visit to me, and the green soap applied over-night. The following day a hot bath was taken, and after two or three nights of the green soap treatment and warm baths, the efflorescences were fairly free from scales. The ointment was then rubbed within at night time, and every fourth night a hot bath was taken. If the patient complained of discomfort of the greasy application—a discomfort which was rarely noted—a dusting powder of equal parts of Venetian talc, oxide of zinc, and starch was thoroughly dredged over the surface and in the folds of the linen. As improvement appeared the hot bath and green soap were used once a week, but the gallanol was increased. When the eruption had faded the gallanol ointment was stopped, and salicylic acid, 2 per cent., or β-naphthol, 2 per cent. in benzoated lard, was ordered to be rubbed into the skin thrice a week for their antiseptic and anti-parasitic action.

Arsenic was now prescribed for its alterative action, and the patient kept under treatment for some time; unfortunately, in spite of one's wish, oft repeated and urged, they soon ceased attendance, for, being free from their disease, they preferred to be free from it mentally. Another example of out of sight out of mind.—*Liverpool Medico-Chirurgical Journal, July*, 1894, *p.* 393.

64.—THE TREATMENT OF LUPUS.

By Norman Walker, M.D., F.R.C.P., Assistant Physician for Dermatology, Edinburgh Royal Infirmary.

As to treatment, our aim, of course, is in all cases the destruction of the tubercle bacillus either by direct or indirect means, but the same methods are not equally adapted for all cases, and in our warfare against the disease we must not forget, as Mr. Morris sagely remarks, that there is a patient behind it.

As to any internal treatment, I use only one remedy, viz., cod-liver oil, and it can only assist other measures; it will never cure the disease. Many drugs may be indicated by the condition of the patient, and my remarks on their general uselessness only apply to those cases where the patient, except for his lupus, is in good health.

Local treatment is absolutely essential, but the principles which should guide this local treatment are to my mind not sufficiently defined; and I think it is possible to lay down some general rules which may guide us in the treatment of particular cases.

Of course excision where possible would, if satisfactory, be the best treatment; but my experience has not been altogether happy. Some of the cases have relapsed, though some have apparently been cured. In one case which I have, a patch has been excised rather larger than a crown. Although the wound did not look at all nice at the time, the result is remarkably good. I would not go so far as to say that there is no tubercle present, but I can observe no evidence of it. Of one thing, however, my experience of excision has made me very sure, and that is that excision must be very wide. In examining the removed portion I have always found small tubercles perilously near the track of the knife, although the incision was to all appearance quite clear of the disease.

In using other forms of local treatment our aim is the removal or destruction of the tubercle bacillus, and as we cannot see it we must be guided by the evidence of its presence—the tubercular nodules. Now it is, to me at least, evident that simple scraping, *the* favourite remedy as I suppose I may call it, is not equally applicable to all cases. It removes all the soft cellular tissues which lie on the surface, but as soon as the spoon reaches formed connective tissue nothing but undue force will enable it to remove any more. Yet tubercles lie in this tissue, which as time goes on grow and multiply, and the case, temporarily improved, is in time as bad as ever again.

In the ulcerative form we have a large amount of a loose œdematous cellular tissue, a condition brought about by

secondary infection. This condition may be removed by prolonged antiseptic dressing, as by Brooke's ointment, but is much more rapidly and efficaciously done by the spoon. After the part has been thoroughly scraped, some further benefit may be attained by the application of nitrate of silver, sublimate, pyrogallic or carbolic acid. By this means all the secondary products and a considerable amount of tubercular tissue is removed.

In the nodular or apple-jelly form of the disease no secondary process is present, but the nodules are present in such numbers that it would be an almost hopeless task to endeavour to destroy them individually, and their number may be reduced by the application of one or other of the selective drugs which destroy the weakened tubercular tissue, and have comparatively little effect on the healthy skin.

The treatment of the fibroid form of the disease by scraping demands an amount of resolution and an expenditure of energy which is but poorly rewarded by the result. Here, too, I try to get rid of the secondary change, the formation of fibrous tissue, before directly attacking the disease. The method I have found most useful in that respect is blistering, and I believe that the reputation of many of the applications in lupus is dependent to a large degree on their counter-irritating properties. The effect of repeated blisters is to remove much of the thickening and bring the nodules to sight. The action is no doubt somewhat similar to the congestion method of Bier, for blistering causes severe local congestion, and I gather that it is in these fibroid cases that most benefit results from Bier's method.

Finally, having reduced the nodules in number and brought them to view, I proceed to destroy them, and I find the cautery the most satisfactory weapon. I use either a fine Pacquelin or the galvanic cautery, and I am inclined to give the preference to the latter. It does not seem to destroy much, but a few days after quite a considerable slough separates, and recurrences are, I think, less frequent after its use. Recently, when only one or two nodules have remained, I have used electrolysis, but it is not applicable to large areas.

The great remedy for lupus is perseverance. Whatever be the original form of the disease it must be followed through until the last tiny nodule has disappeared, and this demands much patience on both sides. I never now undertake the treatment of a case without explaining to the patient or the friends that a prolonged course of treatment will probably, or rather certainly, be necessary, No single operation, except the most heroic excision, can possibly cure the disease.—*Edinburgh Medical Journal*, *August*, 1894, *p.* 120.

AFFECTIONS OF THE EYE AND EAR.

65.—THE TREATMENT OF TRACHOMA.

By Kenneth Scott, M.B., Cairo, Egypt.

In the year 1891 I had the honour of presenting a few remarks on the treatment of this disease before the Ophthalmological Society of the United Kingdom. Since then I have seen reason to change and somewhat modify the treatment there described.

In my paper laid before the Ophthalmological Society I strongly advocated the use of perchloride of mercury in solution. In no way do I depart from my opinion which I there stated, but, owing to various reasons—the discomfort and pain accompanying its application, a certain instability of the salt when in solution and its difficult solubility—I thought it advisable to try and find another equally efficient but less annoying remedy. I therefore tried several other medicaments; amongst these, pyoktanin was found to be absolutely useless. For some time previously I had been using cyanide of mercury in solution with great success, both in the treatment of acute purulent conjunctivitis and in acute and chronic catarrhal conjunctivitis. I accordingly tried it as an application in the treatment of trachoma, and at first in the same strengths in which I used the perchloride of mercury. In comparison I found the application was in no way detrimental to the cornea, even though ulceration coexisted there; there was not nearly as much painful irritation produced as by the perchloride, and the result was equally satisfactory. In 26 cases, for the sake of comparison, I employed the perchloride of mercury application to one eye, and the cyanide of mercury in corresponding strength of solution to the other eye, and found scarcely any difference in regard to the rapidity of cure, but, if anything, the cyanide was quicker in effecting cure than the perchloride; also, a tolerance of the former application was much more quickly established than was the case with the perchloride. Since then I have invariably employed the cyanide of mercury. Varying strengths of solution have been tried, but none give such good and rapid results as the daily thorough application with a brush to the everted eyelids of an aqueous solution of the cyanide of mercury, 4 per cent. strength, and the instillation two or three times daily of a $\frac{1}{4}$ per cent. solution of the same salt. Whatever the condition of the cornea may be it need never be considered in regard to the application of these cyanide solutions, as I have never seen any caustic or permanent irritative effects produced by it. The perchloride of mercury solution, however, must always be employed with care in this respect.

A similar result, as regards ultimate cure, may be obtained by the application with a brush of a 1 per cent. solution of the cyanide of mercury, and the instillation of a solution of 1 in 1,000; but, though the eventual effect is as good, the process of cure is much more slow, extending over two or three months, instead of, as with the stronger solutions, being a question of weeks, and sometimes only of days.

I have found that the season has some bearing on the rapidity of cure. The statistics from which I have deduced the foregoing facts have been divided into those cases treated during the months, extending from May to October inclusive, which is our warm season in Egypt, when the average temperature (according to the records of the last twenty years) is 29° C. (84·2° F.); and into the season extending from November to April, when the average temperature is 12° C. (53·6° F.).

Both applications, namely, the perchloride and the cyanide of mercury, show a similar result; the cure is much more rapidly effected in the warm season than in the cool one. There is no very great variation in the average degree of humidity, so I think it may be left out of account.

I have found no distinction at all in the rapidity of cure in comparing the poor with the well-to-do classes.

I do not think that my patients are placed in any unusually favourable hygienic circumstances in hospital, as they nearly all live an almost entirely outdoor life. The advantages they gain by coming into hospital are absolute cleanliness, and good, wholesome, and regular feeding. A tonic in some form is always administered, usually in the form of one of the preparations of iron, with the addition during the cool season of cod-liver oil.

I have tried the operative procedures which are often advocated, such as squeezing, &c., in conjunction with both the perchloride and the cyanide of mercury forms of treatment; and have compared it, when performed in one eye, with the simple treatment followed in the other eye, but have never found any increased benefit accruing which would induce me to adopt it invariably.

That form of granular conjunctivitis which is seen in long continued or neglected chronic catarrhal or purulent conjunctivitis, but which is quite distinct from proper granular conjunctivitis or trachoma, yields readily to the above described application of cyanide of mercury.

In conclusion, I should like to state, after treating many cases, that all applications of copper or silver salts, which I have tried in the cure of this disease, have proved either useless or positively harmful.—*British Medical Journal*, *September* 15, 1894, *p.* 591.

66.—THE DIAGNOSIS OF PURULENT, CATARRHAL, AND GRANULAR OPHTHALMIA.

By Henry Juler, F.R.C.S., Surgeon to the Royal Westminster Ophthalmic Hospital.

In using the term diagnosis I wish to imply the chief points in the distinction or recognition of these three forms of ophthalmia, so that we may be able to say with better judgment than heretofore what is the nature of the complaint with which we are about to deal.

So far as the cause of these serious affections is concerned we are unfortunately still very much at sea, and until a definite origin can be assigned to each I fear it will ever be difficult to arrive at a definite diagnosis. Nevertheless, from the clinical features of these three affections we can in many instances differentiate them.

First, let us take the acute forms of these three affections—namely, purulent, catarrhal, and granular ophthalmia. In each of these we may find profuse purulent discharge combined with inflammatory infiltration of the eyelids, chemosis of the ocular conjunctiva, and pronounced infiltration of the *culs-de-sac* and palpebral conjunctiva. How can we recognise in the early stage one from the other? The mere occurrence of pus in the ocular discharges is evidently not enough to distinguish the purulent from the other acute forms. To make my meaning as clear as possible I will enumerate the leading features of these three affections, and then point out what I consider the diagnostic signs of each.

(A) *Purulent conjunctivitis* is an acute suppurative inflammation of the conjunctiva. It may occur at any time of life, but is chiefly found amongst the newly-born and young adults. Inflammation commences from one to four days after inoculation. During the first few days, the period of infiltration, there is great pain; the discharge is chiefly composed of serum mixed with tears, sometimes it is a little blood-stained. The eyelids are very much swollen so as to become smooth and shiny, losing their horizontal wrinkle; in some cases they become of brawny hardness, so that the patient is unable to open his eyes, and the doctor can only do so by means of retractors. About the fourth day the period of suppuration sets in, the discharge becomes intensely purulent, the lids become less swollen, the pain diminishes, the conjunctival swelling is less marked: the acute symptoms usually subside in fourteen to twenty-eight days.

(B) *Acute catarrhal conjunctivitis* is an acute muco-purulent inflammation of the conjunctiva. It usually attacks children but may occur at any age. Its onset is sudden, and usually

several members of a household are attacked at once. There is acute congestion and swelling of the ocular and palpebral conjunctiva. The former is often occupied by patches of ecchymosis. There is increased secretion of tears and copious muco-purulent discharge; the lymph or pus appears in large or small flakes floating in the lower *cul-de-sac*; the greater the amount of the discharge the more purulent its character. The lids may be much swollen, but, as a rule, they do not lose their wrinkles; they become firmly adherent during sleep owing to desiccation of the discharge. There is copious lachrymation, photophobia, pricking and burning sensations in the eyes. As a rule, the pain is not severe. The acute symptoms yield quickly and readily to treatment, and the case is usually practically cured in the course of two weeks.

(c) *Acute granular ophthalmia* is characterised by muco-purulent or purulent discharge, photophobia, gritty feeling as of sand in the eyes, and lachrymation. The conjunctivæ of the eyelids, fornices, and even of the globe are congested and thickened by infiltration, the upper and lower fornices as well as the tarsal portions of the palpebral conjunctivæ may be studded with transparent granules, having the appearance of boiled sago grains, but these are frequently masked by infiltration during the acute stage. The eyelids may be much swollen, but as a rule they are less so than in the two preceding forms. The acute symptoms may subside, but the case then assumes a persistent chronic form which is very difficult to cure.

In order to facilitate the proper estimation and classification of these cases, I would first call attention to the nature of the discharge. This, as we have seen, is always purulent or muco-purulent, and should be examined microscopically. The examination should be made at once, whilst the discharge is active and copious. The first search should be for the Neisser gonococcus. The presence of this organisation is easily demonstrated by staining with methylene blue, and using a $\frac{1}{12}$ in. oil immersion lens.

The examination is made as follows:—Place a drop of the discharge upon a cover glass, place a second cover glass over this and press the two gently together so as to form a thin layer of pus on each; then slide them apart and dry gently over a gas flame. Place a drop of 2 per cent. alcoholic solution of methylene blue upon the cover glass and leave it for thirty seconds; now wash away with care the excess of the stain, dry as before and mount in Canada balsam. These small bodies occur mostly in pairs, and are somewhat kidney-shaped; they are found in the epithelial cells, in the pus cells, and in the fluid containing these. They are exactly similar to the organisms found in the urethral discharge of gonorrhœa.

The discovery of this gonococcus by Neisser has materially assisted us, and I believe it possible to find this organism in all cases of gonorrhœal origin.

Out of 25 cases I have examined for this gonococcus, I have found it in 24. Only 7 of the cases were taken from adults, the remainder were taken from cases of ophthalmia neonatorum. The absence of the gonococcus is, to my mind, sufficient to exclude gonorrhœal ophthalmia; and I am further convinced that with absence of the organism there is also absence of danger of those complications which we all know so well in connection with purulent ophthalmia. With regard to the discharge in acute catarrhal cases, Weeks and Kartulis have separately described an organism which they consider to be diagnostic of this affection. It differs from the gonococcus in not occurring in pairs and in being a bacillus with a slight central constriction. With the help of Mr. John Griffith, I have made repeated examinations of these discharges, and have found an organism similar to theirs in many but not in all cases. Further researches will be necessary before we can be positive as to the micro-organism which is undoubtedly associated with this disease.

Of the "trachoma coccus" I have so far had no experience, although I am convinced that the day is not far distant when its discovery will be established.

The intensity of the pain attending the onset of these cases is of some importance. In purulent ophthalmia, especially in adults, the pain is generally severe, whilst in the catarrhal and purulent forms it is much less so. The amount of swelling of the lids is as a rule much greater in the purulent than in the other forms. The appearance of the conjunctiva is of some help in diagnosis; this, as we have seen, is greatly congested and thickened with infiltration in all cases. The thickening is most pronounced in the purulent and granular forms. When sago grains appear on the tarsal surfaces of the palpebral conjunctiva, the diagnosis of acute granular ophthalmia is made clear, but as a rule in acute cases these bodies are so marked by infiltration that it is next to impossible to make a correct distinction. The only way of clearing up the difficulty is by waiting until the discharge has ceased and the mucous membrane has become less infiltrated. The prognosis in either form of acute ophthalmia should always be carefully guarded.

Chronic ophthalmia is a long-standing conjunctivitis attended with persistent muco-purulent discharge, gumminess of the eyelids in the morning, constant running of tears, a gritty sensation and heavy feeling of the eyelids at night. This may be due to chronic catarrhal or to chronic granular ophthalmia. How can we distinguish between them? This is a vexed

question which will possibly never be absolutely settled until the "trachoma coccus" has been definitely described. Much of the confusion arises out of the variable number of follicles which are found to exist in the conjunctiva at the time of the examination. Dr. Sydney Stephenson has recently told us that he has found follicles existing in the lower *culs-de-sac* of hundreds of children whose eyes were supposed to be quite healthy. To my mind, the follicles act as sentinels to give warning of the approach of any poisonous substance in the palpebral sac; that they become irritated, inflamed, and even increased in number by certain specific poisons, aad that the poison most powerful in this respect is that of granular ophthalmia. I have here some photo-micrographs of sections of the conjunctiva in a series of cases occurring in my hospital practice, which have been taken for me by Mr. John Griffith. These photographs show many points of interest, but I exhibit them really to prove how much more the follicles are increased in size and in number in granular ophthalmia than in any other form. One specimen indeed shows a trachoma follicle existing in the *substantia propria* of the cornea—a position in which follicles certainly do not exist in health. I would say, therefore, that excessive formation of granulations in the *culs-de-sac* point to trachoma, but their actual presence on the palpebral portions of the conjunctival membrane is proof positive of that affection. On the other hand, the absence of follicles does not exclude the case from being one of trachoma, for in those of old standing it is usual to find a diffuse vascularised lymphoid tissue without any circumscribed lymphatic nodules, even if distinct granulations are present.

The presence of cicatrices in the palpebral conjunctiva is strongly suggestive of granular disease, so much so that by excluding traumatism and pemphigus conjunctivæ we are able to say, more or less emphatically, that such are cases of old or subsiding trachoma.

So-called follicular conjunctivitis is never followed by cicatricial contraction, and, though somewhat tardy in its progress, tends to subside without any visible organic change in the membrane. Clinically, therefore, there is not much difficulty in distinguishing this complaint from its malignant ally.

Chronic simple conjunctivitis, with extensive infiltration of the *cul-de-sac*, as well as the palpebral conjunctiva, is unattended as a rule with much change in the follicles—certainly no exaggeration of them. It usually starts in middle life, and can in many instances be associated with atonic dyspepsia. The gums are usually inflamed, and their teeth decayed, covered with tartar, and improperly attended to, this being the usual source of their gastric derangement; sometimes,

however, it is alcohol. In such cases there is a tendency to eversion of the lower eyelid; whereas in trachoma we generally find entropion of the upper lid. It is a most troublesome affection, and almost as difficult to treat as granular ophthalmia. It is generally symmetrical, as it is due to constitutional disorder, but it has not been proved to be contagious.

In conclusion, I wish to call attention to the fact that it is impossible in some of these chronic cases to give a diagnosis at their first visit, that is to say, whether it is one of trachoma or not. By removing all sources of local irritation, by attending to the constitutional state of the individual and his hygienic surroundings, the inflammation may subside far more rapidly than expected and leave a fairly healthy membrane without any cicatricial change.—*British Medical Journal, September* 15, 1894, *p.* 589.

67.—ON 925 EXTRACTIONS OF CATARACT.

By Charles Higgins, F.R.C.S., Ophthalmic Surgeon to Guy's Hospital.

When I commenced preparing this paper I intended to write my experience of 1,000 operations; but, though I have extracted cataract from over 1,100 eyes, I find there are some 200 of which I have no notes. I have, therefore, contented myself with those cases of which I have more or less full details. Four hundred and sixty of the cases have already been published in three separate papers. My first paper was read before the Royal Medical and Chirurgical Society in 1879, and referred to 150 operations performed between April, 1875, and May, 1878. My second paper was communicated to the Ophthalmological Society in 1884, and gave the details of 200 extractions performed between May, 1878, and February, 1883. My third paper was in the form of a communication to *The Lancet*, Nov. 11, 1893, and gave my experience of 110 extractions performed between May, 1891, and May, 1893, 52 being done without iridectomy and 58 with. I now add to these the notes of 465 operations performed between February, 1883, and May, 1891, and from May, 1893, to May, 1894. In the notes referring to the latter period I have, as in my communication to *The Lancet* compared the non-iridectomy and iridectomy cases together. In estimating results, vision $\frac{6}{60}$ and ability to read Jaeger types 16 or Snellen's 4 or better, are considered successful; Jaeger 19 or 20, counting fingers, or seeing to get about, partially successful; no improvement or worse vision than before operation as failure. The results of my first 150 cases, published in vol. lxii. of the

Transactions of the Royal Medical and Chirurgical Society, were: successful, 76·6 per cent.; partially successful, 16 per cent.; failures, 7·3 per cent. Of the 200 cases published in the Transactions of the Ophthalmological Society, vol. iv.: successful, 87·5 per cent; partially successful, 4·5 per cent.; failures, 8 per cent. In the third series of cases the results of the non-iridectomy cases were: successful, 88·4 per cent.; partially successful, 7·6 per cent.; failures, 1·9 per cent.; not recorded, 1 case. Of the iridectomy cases: successful, 68·9 per cent.; partially successful, 18·9 per cent.; failures 3·4 per cent.; not recorded, 5 cases. The results, however, show nothing in favour of the non-iridectomy operation as against that associated with iridectomy, as the non-iridectomy cases were all picked. Of the 465 cataracts extracted since February, 1883, 437 were nuclear, 21 cortical, and 7 traumatic. Extraction was performed by a small flap section upwards (with a few exceptions where the section was made downwards or in some oblique direction), associated with iridectomy, performed either simultaneously or as a preliminary some weeks or months before the removal of the cataract, in all but 39 eyes, which were operated on by a small flap section upwards without iridectomy. I used to do preliminary iridectomy in most cases of immature cataract when I performed all my operations under anæsthetics; it saved time and facilitated the removal of the cortex when the extraction was performed; and also lessened the risk of iritis; but since I have operated almost entirely under cocaine I have given it up, as any amount of time may be spent over the operation, and the cortical matter can be much more satisfactorily dealt with. My method of operating is now (and has been for many years past) to hold the upper lid away with the end of the ring finger, fix the eyeball below the horizontal meridian of the cornea, and make the forceps keep the lower lid out of the way (I rarely use a speculum). I make my incision with a Graefe's knife, by puncture and counter-puncture in the sclero-corneal margin, cut in the sclero-corneal margin to near its upper part, but finish the section rather within the corneal border. If I am going to do iridectomy, before commencing the incision I pass a suture through the conjunctiva below the margin of the cornea and leave it hanging on the patient's cheek; then, if I want the eye drawn downwards, I tell the patient to look down, draw the suture moderately tight, and get an assistant to put his finger on it, and so the eye is kept fixed in the desired position without being touched with forceps, and the silk thread acts as a speculum to the lower lid. I keep the upper lid out of the way with a finger of the hand which holds the iris forceps. I remove the cataract by pressure through the lower lid with my fingers, or directly upon the eyeball with the curette.

The results of the 465 operations were 351 (75·2 per cent.) successful; 44 (9·4 per cent.) partially successful: 33 (7 per cent.) failures; and 37 cases the results of which are not recorded; these 37 cases would probably go in about equal proportions to swell the successful and partially successful lists. I do not think any of them would be recorded as failures; the failures always occur before the patients pass from observation. The non-recorded cases are those which should have returned for glasses or further treatment and failed to do so. Secondary operations, needing opaque capsule, tearing through dense opaque membranes with sharp hooks, iridectomy, and iridotomy were required in 134 eyes; this does not give the whole number of operations, as several eyes were operated on more than once, some four or five times. Vitreous was lost in 14 cases. A traction instrument (Taylor's loop or a sharp hook) was used for removal of the lens in 22 cases. In 1887 I removed some few cataracts in the capsule with the loop, without attempting to extract them in the ordinary way, with good results, but its use seemed to me unnecessary; as a rule the loop or hook was only used in cases where there was difficulty in pressing out the lens. In 11 cases the capsule was washed out with boiled water, with excellent results; I consider this a very valuable proceeding in cases where much cortex remains behind and cannot be pressed out in the ordinary way. In one case of traumatic cataract, where a piece of steel had been removed from the lens by the electro-magnet, the lens matter was so sticky and mixed up with lymph that its removal by pressure was quite impossible. I washed it out with boracic acid lotion; no iritis followed; the eye recovered with circular central pupil and vision $\frac{6}{12}$ with + 12 D and Jaeger 2 with + 15 D. Of the 33 failures suppuration of the cornea or panophthalmitis was responsible for 16 cases; severe iritis or choroido-iritis for 12; and hemorrhage into the eyeball consequent on vomiting for 2 cases. The cause in the other three cases is not recorded, but they were probably blind eyes in which the lens was removed for appearance sake. Amongst the failures are three cases in which the second eye was lost from sympathetic ophthalmia. I have not included the eye not operated on in my list of lost eyes.

With regard to the non-iridectomy operations performed since May, 1893, of which there are 36 nuclear, 2 cortical, and 1 traumatic, as against 30 nuclear, 4 cortical, and 1 traumatic extracted with associated iridectomy, the results are as follows:— Non-iridectomy cases: successful, 31; partially successful, 4; failures, 2; result not recorded, 2. Iridectomy cases: successful, 24; partially successful, 3; failures, 3; not recorded, 5. The secondary operations required were 6 in the non-iridectomy

cases and 12 in the iridectomy cases, so that it would appear that iritis sufficient to cause capsular obstruction is much more common when iridectomy is performed than when it is not. On looking through the tables I have prepared I find there are many points of interest, but even to mention them all would make this paper much too long; but I may call attention to a few of them. Taking the results of the three larger series, the percentage of failures varies but little, being 7·3 per cent., 8 per cent., and 7 per cent. respectively; but there is a great difference in the relative number of successes to partial successes, especially between the first and second series. This, I think, is due to the time at which the final notes of the cases were made, more care having been taken to see that the final result after all secondary operations had been performed were recorded in one series than in the other.

In January, 1885, I first commenced to use antiseptics, and their influence upon the number of failures is most marked. There is, however, a source of fallacy, and the whole of the improvement must not be put down to their use exclusively, for a month later, in February, 1885, I commenced to use cocaine; not at first in by any means all the cases I operated on, but occasionally. I did not believe in its anæsthetic properties: when I had convinced myself on that score I thought it was too good to be true, and always expected disaster to follow its use, sooner or later; but the disaster has not come yet. I had one case in 1885 in which, I believe, cocaine was responsible for the loss of an eye. It had been used too long, and the cornea had become steamy from its effects when I operated. Suppuration commenced the day after the operation, but that is the only case in which I have the least suspicion that cocaine did any harm. I have used solutions of 2, 5, and 10 per cent., but now have settled down to 5 per cent.

The total difference in my results since January, 1885, whether entirely due to antiseptics or to cocaine, or to a combination of the two, is that of 334 cases, not counting those that formed the subject of my paper in *The Lancet* of Nov. 11, 1893, the failures have been 4·2 per cent., against 7 per cent. in the whole series of 465 operations, and against 14 per cent. in the first 131 cases operated upon in the years 1883-84. In these two years I find eight failures out of 33 cases, and again, some months later, a series of 26 cases with 6 failures. The probability is that at these two particular periods the ward was, from some cause or other, in an unusually septic condition. If I add the 110 cases reported in *The Lancet*, the percentage of loss of the whole 444 eyes operated on since I commenced to use antiseptics is 3·8 per cent.—*The Lancet, August* 11, 1894, *p.* 316.

68.—THE TREATMENT OF OTORRHŒA.

By Hugh E. Jones, Assistant-Surgeon, Liverpool Eye and Ear Infirmary.

In every case the principles of treatment are the same, viz., drainage, removal of disintegrated or hypertrophied tissue and neoplasms, and antisepsis. The discussion, therefore, resolves itself into the question of how these principles may be most completely realised in each case or class of cases. In all, the first point to be attended to is the patency of the external auditory meatus. Throughout the course of the case this must be carefully maintained. Often, especially in children, both the discharge and the applications made to the tympanum have an irritating effect upon the skin, causing eczema, excoriations, and swelling. The next point is the position and size of the perforation in the membrane. If small, it should be enlarged, with the galvano-cautery or paracentesis knife, in the direction which will most favour drainage and the application of lotions, &c. Granulations and polypi, so far as they are within reach, whether growing from the meatal wall, the membrane, ossicles, or the walls of the tympanum, must be destroyed. Large polypi may be cut through as near the base as possible with the ecraseur, or a drop of a strong solution of chromic acid may be injected into the substance of the polypus with a hypodermic syringe. For the destruction of the root, and of small polypi and soft granulations which cannot be easily caught by the ecraseur, I rely entirely on solid chromic acid fused on a probe point. An attempt may also be made to cut through or break down adhesions between the ossicles or membrane and the promontory, if any such exist. The third preliminary point is the thorough treatment of any existing diseased or hypertrophic condition of the naso-pharynx and Eustachian tube. Without this, it is practically useless to attempt a radical cure of the otorrhœa. (If the Eustachian tube is not freely open, fluids cannot enter the tympanum from the meatus, and the assistance of inflation *per tubam* in driving out accumulated discharges is lost. Moreover, chronic inflammatory conditions of the naso-pharynx with open tubes will inevitably lead to relapses of the tympanic disease.) We are now in a position to treat the mucous membrane of the tympanum itself.

As a rule, syringing as carried out at home by the patient is very nearly, if not quite, useless. In order to secure effective syringing, I direct the patient to use the fine rubber tube made by Down Bros., at the suggestion of Mr. Arbuthnot Lane. This tube is pushed into the ear as far as it will go, and the nozzle of the syringe applied to its outer dilated end. One thorough

washing out *per diem* is sufficient. The lotion usually prescribed is 2 per cent. solution of boracic acid, 2 per cent. solution of carbolic acid, or 1·4000 perchloride of mercury. After syringing, the tympanum and meatus may be carefully dried with absorbent wool, and boracic acid powder blown in, or it may be filled with one of the following "drops": Alcohol 50 per cent., iodoform 3 per cent.: chloride of zinc 1 per cent. (to which a few drops of dilute hydrochloric acid may be added): bicarb. of soda 2 per cent., carbolic acid 2 per cent., glycerine 10 per cent. Fresh drops or powder should be put in three or four times a day.

After the granulations have been completely destroyed, the surface from which they sprang must be examined for carious bone, and this, if discovered, should be scraped with a fine curette, and the ordinary treatment continued.

Suppuration of the attic may in rare cases (generally, when one or more of the ossicles have already been discharged) be overcome by antiseptic irrigation by means of one of the intra-tympanic irrigators in vogue (preferably Milligan's), or possibly by dry cleansing and application of iodoform and boracic powders; chronic suppuration of the antrum, especially when there is a sinus leading into it from the surface behind the ear or within the external meatus, may, conceivably, in rare cases be treated with success by similar methods; cholesteatoma confined to the meatus and tympanum might possibly be gradually scraped out, and superficial caries or necrosis, not within reach of the curette introduced through the membrane, may end by complete discharge of the debris and subsequent cicatrisation: this much we may admit; but do these methods, except in a very few cases, meet the first principles of surgical treatment, viz., perfectly free drainage, or the complete removal of the diseased tissue and the subsequent maintenance of an aseptic condition? Results show that they do not. The alternative is radical operative treatment.

At the last meeting of the British Medical Association (Newcastle, 1893), Mr. Victor Horsley suggested that it would be well to lay down a rule that thorough opening of the mastoid antrum should be performed in every case of otorrhœa which had resisted ordinary treatment for twelve months. With due deference to Mr. Horsley's great authority, I would submit that the fixing of any time-limit would be productive of more harm than good; because, on the one hand, many cases are ripe for operation the day they come under the aural surgeon's care, and on the other hand, any such limit would encourage laxity in the determination of the exact variety and extent of the disease, with the result that all cases would be treated very much alike, both during the twelvemonths' probation and afterwards.—*Liverpool Medico-Chirurgical Journal*, *July*, 1894, *p.* 290.

69.—THE STACKE-SCHWARTZE OPERATION FOR OTORRHŒA.

By Hugh E. Jones, Assistant Surgeon, Liverpool Eye and Ear Infirmary.

Under this name Dr. Holmes has described in the *Arch. of Otology*, October, 1893, an operation which has probably suggested itself to most men who have performed Stacke's operation.

Description of the Operation.—As I was first induced, after giving up Stacke's operation, to the performance of this operation in the place of antrectomy by Dr. Holmes's excellent paper, what I have to say will, with one or two differences suggested by my own experience, naturally follow his account of the operation.

(1) Antisepsis—as perfect as possible—is insisted upon. This operation, when performed in a chronic otorrhœa without any urgent symptoms, is a matter of expediency rather than of absolute necessity, so that the extension of the existing mischief must be very closely guarded against.

(2) *Incision.*—Holmes directs this to be made a few millimetres behind the attachment of the auricle. I prefer to make it *at* the attachment, because the landmarks in the bone are more easily found and the subsequent scar is less conspicuous. Commencing at the highest point of the attachment of the auricle behind, the incision follows the concha closely, until the latter bends forward, and then passes downward and slightly backward to the middle of the mastoid process. All the soft parts, including the periosteum, should be divided thoroughly in the whole length of the incision. Elevate the periosteum forward into the external meatus and backward over the supra-meatal triangle. This exposes the postero-superior margin of the meatus and the supra-meatal spine. Pull the auricle well forward and downward, and separate the lining of the meatus right up to the drum, so that the upper posterior part of the latter can be felt with the probe and seen. It saves much time to get all the cutting and tearing done and the bleeding stopped before anything further is attempted. Retractors are now to be applied.

(3) In the absence of a burr and motor, the best instrument, in my opinion, for making the preliminary opening into the antrum is a wide-angled drill-shaped instrument used like a trephine, *i.e.*, with half turns. The point should be applied at a spot close behind and above the supra-meatal spine, and worked in a direction horizontally inward and forward (*i.e.*, parallel to the postero-superior angle of the meatus). The opening can be widened from time to time, if the bone is soft,

with a sharp spoon; if hard, with chisel and mallet. As the depth increases, the cavity must not be enlarged downward. If the bone is "pneumatic," several cells will probably be opened up before the true antrum is reached. Where the bone is "diploëtic" or sclerosed, the antrum is usually small; and it is advisable to take measurements and bearings frequently.

We know that the antrum is reached by its hard inner wall sloping forwards and inwards, along which a bent probe can be passed into the attic, and by its distance from the supra-meatal spine. (Caution.—For the first quarter-inch of the bone-cutting the thing to be avoided is opening the sigmoid groove; for the next quarter, the middle fossa of the skull; and the final eighth or quarter, the facial nerve and the inner wall of the antrum, with the horizontal semi-circular canal.)

So far the description serves as well for "antrectomy," but now the paths diverge.

(4) A bent probe should be passed though the antrum into the tympanum, and held in position by an assistant. Cut away, with great care, with chisel and mallet, the wedge of bone between the cavity made and the meatus. At its outer end the whole of the posterior wall of the meatus may be removed, but when the inner third is reached the cutting must be sloped upwards over the dense bone covering the facial canal, so that more of the superior than of the posterior wall is removed. At the insertion of the membrana tympani the whole of the upper wall should be shaved off, so as to open up the attic freely. The last portion of the bridge (forming the actual outer wall of the aditus) is very hard and brittle, and gives way with a crack. In one of my cases the whole bone was sclerosed and of almost ivory hardness. The cutting through of this bridge caused a fracture of the wall of the facial canal, with injury to the nerve, from which recovery has, so far, been only partial. Usually there is a marked difference in hardness between the wall of the facial canal and the surrounding bone; but where extreme sclerosis has taken place this distinction is lost, and the danger of direct injury and fracture correspondingly increased. After this unfortunate experience I would strongly recommend simple antrectomy where the bone is very hard, and the burr and motor are not available. Another source of danger to the facial nerve in all operations about the antrum and tympanum is the existence of a gap or gaps in the wall of the canal, either congenital or as a result of caries. Probes and curettes must on this account be used with great gentleness in the neighbourhood of the "aditus."

(5) *Removal of the membrane and ossicles.*—The incus is easily seen and reached. Often it is found to be nearly or quite loose; if so, it can be removed with a pair of forceps; if not, divide its

articulation with the stapes with a narrow knife. Pass a blunt-pointed knife around the circumference of the membrane, seize the malleus with a pair of forceps, and a few touches with the blunt-pointed knife will allow it to be drawn out. Removal of the stapes causes symptoms of the "Meniére type," and may lead to suppuration in the vestibule. It is therefore not advisable to interfere with that bone unless it is obviously carious or detached.

(6) *Final stage of the operation.*—Examine the cavities for, and remove with the curette, all granulations, epithelial masses, and all patches of carious bone, paying due heed to their relation to the sigmoid sinus, the labyrinth, the jugular fossa, the facial canal, the carotid canal, and the middle fossa of the skull. Split the lining of the meatus along its postero-superior angle, from its inner end to the concha, at which point make a transverse cut. When bleeding has stopped, apply iodoform and boracic powder freely to the whole surface of the cavity; close up the external incision by means of three or four sutures; pack the whole cavity through the external meatus with one long narrow strip of iodoform gauze.

Subsequent treatment.—In the absence of pain, rise of temperature, or other sign of suppuration, the first packing may be left for a week or even longer (Macewen has left the dressing in antrectomy for a fortnight.) The sutures may also be left, unless causing irritation. In the event of suppuration, the packing must be removed, the cavity irrigated with some antiseptic lotion, dried, dusted with boracic acid, and repacked every day. Granulations, if exuberant, should be touched with chromic acid. Cicatrisation, if all diseased part has been removed, takes place in from four to eight weeks. The healing of the external wound is usually complete in a week or ten days. Where it is not possible to remove all the diseased bone, the treatment must be conducted as before the operation, but with this advantage, that now the disease is probably within reach of antiseptic drops and lotions, and can be inspected. If the meatus is not thought sufficient for drainage, the mastoid wound can easily be reopened and a permanent fistula made.—*Liverpool Medico-Chirurgical Journal, July*, 1894, *p.* 294.

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Obstetrics and Gynæcology.

70.—ON THE MANAGEMENT OF FACE-PRESENTATIONS.

By Edward P. Davis, M.D., of Philadelphia.

The treatment best adapted to secure spontaneous labour in face-presentations consists in retaining the membranes unbroken until the time of spontaneous rupture; of sustaining the patient's strength and conserving her energies by suitable feeding, stimulation, and anodynes; and in placing the patient in such a posture as to favour the rotation of the chin anteriorly. When the face looks toward the left side of the mother's pelvis she should lie upon the left side, her thighs flexed, and the uterus brought as nearly as possible with its long axis corresponding to the axis of her body during labour-pains. Should the fœtal face look toward the right side of her pelvis she should lie upon her right side. The relation of cause and effect that has been found to exist between obliquity of the uterus in the mother's abdomen and face-presentation renders the maintenance of the uterus in a favourable posture during this complication a matter of considerable moment. It is quite possible in such cases for a face-presentation to be spontaneously changed into an occipital one, and for the occiput even to rotate spontaneously to the front, if these precautions are observed. The administration of such substances as tend to maintain efficient uterine contractions is certainly indicated in these cases before the membranes rupture. As soon as dilatation is complete the obstetrician is to choose between radical interference by version, or an effort by the methods of Baudelocque and Schatz to correct the face-presentation by converting it into an occipital one. His choice in this decision should depend upon the size and shape of the mother's pelvis, the comparative size of the fœtal head, and the condition of the pelvic floor. When no disproportion exists between the head and the pelvis, and when the pelvic floor, although elastic and resistant, offers no undue obstacle to the mechanism of labour, it is certainly proper to allow the head, under good labour-pains and with good extension, to come down upon the pelvic floor in face-presentation, and thus an opportunity be given for the

mechanism of labour to proceed spontaneously. When, however, there is a disproportion between the head and the pelvis, as evidenced by pelvic proportions less than the average, ascertained by pelvimetry, or a large fœtal head, as ascertained by palpation and a thorough vaginal examination under an anæsthetic, the case becomes quite different.

The results of forcible delivery in face-presentation under these conditions are anything but satisfactory and encouraging. The literature of the subject abounds in illustrations of difficult deliveries by forceps, craniotomy, and, in some cases, by version, in which the life of the child has been lost and the mother seriously injured. In the light of our present knowledge the duty of the obstetrician lies in completely changing the presentation, if the pelvis be roomy, by podalic version under anæsthesia by chloroform, or in so enlarging the pelvis that the mechanism of labour in face-presentation can continue.

Podalic version for face-presentation is familiar as an expedient, and is, in well-selected cases, a prompt and efficient method of treatment. Symphysiotomy is a procedure of too recent date to occupy an established place in these cases in the resources of obstetric art. My reasons for considering this a rational procedure are as follows :—Personal observation in four symphysiotomies done for disproportion between the head and the pelvis has led me to remark the decided increase of the oblique diameters of the pelvis that follows the separation of the pubic joint. In three of the four cases the fœtal head presented in an occipito-posterior position ; in two cases the right occipito-posterior, in one the left. In one of these cases the head presented by the right parietal bone before the pelvis was opened. Remembering the observation by many obstetricians that face presentations are often developed out of occipito-posterior positions, it seems to me rational that any surgical procedure which should enlarge the oblique diameters of the pelvis, and which naturally favours the descent of the occiput in the arc of the pelvic curve lying between the sacro-iliac joint and the spine of the pubes, which afford rectification of this abnormal presentation. The three cases of occipito-posterior position following symphysiotomy were readily delivered without injury to mother or child.

Obstetricians are familiar with the facility with which faulty presentations of the head and shoulders may be remedied when two conditions are present : first, complete anæsthesia of the mother ; and second, a pelvis of good size in its oblique diameters. Reasoning from my experience in the cases cited, these conditions are present after symphysiotomy, and were the spontaneous progress of labour in this presentation to fail, I should much prefer, if the pelvis were of good size and the

head not impacted, to perform podalic version ; or, if the head were impacted, and disproportion existed between the head and the pelvis sufficient to occasion difficulty in labour, the face-presentation persisting, I should hope for a favourable result from symphysiotomy, converting the face-presentation into a vertex-presentation, and delivering the occiput in the manner most easily available after the pubic joint had been opened.—*Medical News, July* 14, 1894, *p.* 45.

71.—ON THE CAUSES AND SYMPTOMS OF TORSION OF THE PEDICLE OF OVARIAN TUMOURS.

By James P. Warbasse, M.D., Assistant Surgeon to the Methodists' Episcopal Hospital, Brooklyn.

[Dr. Warbasse records a case of successfully treated abdominal section, and makes the following amongst other important observations upon the causes and symptoms of the conditions under discussion.]

When we come to look into the etiology of torsion of the pedicle of ovarian tumours, it is evident that it is based upon simple mechanical principles.

The contour of the tumour must have an important bearing. Thornton has called attention to the fact that the dermoid tumours are much more prone to undergo rotation than any other variety of ovarian growths. This is easily explained by the nodular projections on the surface of these tumours, which offer shoulders against which the rotating forces may be exerted. Statistics show that tumours with twisted pedicles are usually of small size, for tumours which have reached any considerable size have adhesions, and have become more or less adapted to the shapes of the surrounding parts. The repeated filling and emptying of the urinary bladder has been suggested by Klob as a cause of rotation.

An examination of Thornton's tables shows that 16 per cent. of the cases were associated with pregnancy, and that in 5 per cent. of the cases the acute attack followed labour. This same author has recorded three cases in which diminution in the size of the tumour by tapping caused rotation to strangulation. He has also suggested the peristaltic action of the intestines as being of etiological importance. Tait has suggested that the movements of the fæcal mass through the intestines might have something to do with rotation.

The acute onset has been associated with an attack of constipation. The sudden stoppage of menstruation by exposure

to cold has also figured as an exciting cause. The changes of position of the tumour caused by respiration, walking, lying, and other ordinary body movements, palpation of the tumour, and ascites, may also be regarded as etiological factors ; and Matheson's case and the one which I have reported are traceable to an attack of vomiting. Sudden strain or change of position and direct violence frequently act as the immediate exciting cause. Finally, there is often no history of exciting cause.

Of course, the pedicle of an ovarian tumour will stand a certain amount of torsion without giving any symptoms. Beyond this, up to a certain point, the symptoms are vague and illy-defined. But a point is reached in the process of torsion beyond which marked circulatory disturbances must result ; and it is the sudden passing of this point that gives rise to the very acute and characteristic symptoms of the disease. First, the venous return is shut off because of the lesser degree of resistance to outside pressure in the walls of the veins. The acute symptoms begin the moment when blood is being pumped into the tumour through the arteries while the compressed veins are unable to return it. As a result of this the tumour suddenly becomes engorged with blood. This causes an extravasation of serum, an over-distension and rupture of the smaller vessels, and a consequent enlargement in the size of the tumour.

In more than half of Thornton's cases the cyst was distended with blood, and in none is it noted that the cystic contents were clear. The blood contained in these cysts varied from bright red, fresh blood, to clots in all stages of coagulation and disintegration. This hemorrhage may be so severe as to cause death.

Another alarming symptom is that of intestinal obstruction. It can be accounted for by the sudden increase of pressure upon the intestines due to the enlargement of the tumour. Adhesions may also play an important *rôle*, for in the case which I have reported the small intestine was bound by adhesions to the twisted pedicle. Another cause is found in the fact that a woman suffering from this condition, with the general depression and the severe pain incident to every motion, is disposed to suppress rather than encourage a movement of the bowels. I am also inclined to believe that the obstruction in many of these cases is excited or aggravated by the opium which must be given in large amounts to control the pain.

The chief pain is referred to the pedicle, and is due to pressure upon the ovarian nerves. In severe cases there is pain and tenderness over the whole tumour from the tension and pressure upon the spread-out filaments of ovarian nerves in the wall of the tumour. In some cases the pain radiates over the abdomen and down the thigh.

Other symptoms are those of hemorrhage associated with the depression due to severe intra-abdominal pain. These symptoms are quickly complicated or supplanted by those of other peritoneal disturbances.

Any sudden attack of prostating pain in the region of the ovary, especially in a patient who is known to have an ovarian tumour, should lead us to suspect a twisted pedicle. The suspicion would be all the greater should the attack occur in connection with pregnancy. It must always be borne in mind, however, that these attacks may occur in patients whose tumour has never been discovered.

Because of the great tenderness a satisfactory palpation cannot be made ; but some observers have been able, by vaginal examination, to discover the tender, twisted pedicle to one or the other side of the uterus. Rapid increase in the size of the tumour is another important sign. These symptoms, when occurring in complication with other abdominal disease, may be a source of confusion.

The reports of recurrences and spontaneous relief show that it is possible for the tumour to untwist ; in fact, this is not an infrequent outcome. If, however, the venous return remains obstructed, and the patient does not bleed to death, the result must be a coagulation of blood in the veins and also in the arteries supplying the tumour through the pedicle. If there are vascular adhesions to the neighbouring structures, even when the circulation through the ovarian vessels is shut off, the tumour may continue to live. But if the tumour is without such adhesions, it then has no circulation and becomes, in a pathological sense, an infarction. The destiny of such a foreign body in the abdomen must vary with a multitude of circumstances, depending chiefly on the size and the presence or absence of infection. Under ordinary conditions, adhesions would be set up, and the body eventually become replaced by a mass of fibrous tissue, as occurs with bits of liver or kidney which have been experimentally introduced into the peritoneal cavity.

The comment of Spencer Wells, that gangrene is inevitable if the rotations are so complete and enduring as to strangulate the arteries, is not in accord with our present knowledge. It is true that such an imperfectly nourished tumor-mass is a *locus minoris resistentiæ*, and very prone to become the seat of bacterial development. Such organisms may gain admission from within, from the tubes, or by tapping. The prognosis of the unoperated case, under such circumstances, becomes a very different one.

Thornton has figured the mortality in the cases upon which he has operated at 7 per cent. Of the four deaths, two were

certainly due to the previous infection of the cyst by tapping, and not to any effects of rotation. He regards the dangers of operation as scarcely more than those in operation upon the uncomplicated cases.

In conclusion, judging from the foregoing cases, I may say that the two great dangers to be apprehended in cases of rotated ovarian tumours are hemorrhage and intestinal obstruction; and in these two dangers is sufficient justification to regard the lesion as one of emergency, demanding operative relief.—*Annals of Surgery, April*, 1894, *p.* 447.

72.—ON DESTRUCTIVE ULCERATION OF THE VAGINA.

By James Braithwaite, M.D., Obstetric Physician to the Leeds General Infirmary.

The various lupoid forms of ulceration of the vulva, although not thoroughly worked out as regards the peculiar microbe which no doubt causes them, are nevertheless well known, and have been fully described, especially by the late Dr. Matthews Duncan. The same writer also wrote upon small patches and ulcers of the vulva with tendency to hemorrhage. Ulcerations confined to the vagina have received less attention, although cases occur of great importance. Two forms of extensive ulceration of the vagina have come under my notice. Both of them are most intractable in their nature and almost unamenable to any treatment, except improvement of the general health. The first form is, so far as I have seen, confined to the lower part of the vagina, the mucous membrane of which it destroys completely on its posterior surface. The second form is confined to the upper part or roof of the vagina, and is more superficial, but very chronic. Neither of them is malignant—*i.e.*, cancerous. I can find no account of either of these diseases. They have no connection with corroding ulcer or with any of the so-called lupoid forms of disease, as they are both unattended with any up-growth or hypertrophy. Of the first form I have only seen two cases, but as both were almost precisely alike I will, for facility of description, call it a form or species of disease. I can best describe it by giving a case.

Case 1.—A woman aged fifty-five, when in church, felt a slight draught of cold air in the face. This originated an inflammation of one eye, ending in its disorganisation, and it was removed by Mr. Secker Walker in the spring or summer of 1892. In August of the same year she came to me with complaint of uneasiness

about the vagina, and I found an extensive and slowly spreading ulceration. This gradually extended almost round the whole lower part of the vagina. At first it consisted of four or five narrow ulcers occupying the bottom of the folds of the swollen and red mucous surface. The lower edge of each of these reached exactly to the lower margin of the true vagina, and they extended upwards to not quite half the length of the vagina on its posterior surface. These ulcers gradually coalesced, leaving, however, little tongues of undestroyed mucous membrane marking their original number. The edges were not excavated, but clear cut to the full depth of the ulceration. The mucous membrane appeared to be entirely destroyed and the tissues beneath laid bare. The surface was dry in appearance, the slight semi-purulent secretion upon it being hardly visible except by close inspection. The colour was a deep bluish-red. There was no slough and the disease progressed by a slow molecular necrosis. It was not painful unless the parts were stretched for the purpose of examination. There was not the least thickening of the edges of the ulceration or any up-growth whatever, either in the surface or in any neighbouring part. Having thus destroyed the lower half of the vagina except the anterior wall, the disease then remained perfectly stationary for about four months. No local treatment had any effect upon it, but lightly packing the part with lint, steeped in a weak carbolic and zinc lotion, seemed to answer best. Both nitric acid and nitrate of silver were cautiously tried at spots on the edge, but they produced no tendency to heal. Meanwhile the patient was taking quinine, wine, and as generous a diet as she could digest. Six months before she came under my care she had had, as stated, one eye extirpated for hopeless inflammation of a low type. She now began to show symptoms in the remaining eye which made me feel that some radical change must be made or this eye would follow the fate of the other one. I insisted upon her leaving the town altogether, which she did in a few days, being thoroughly alarmed about the other eye. In the country her general health improved at once, and after a considerable time the vaginal surface began to heal by a thin pellicle of epithelium creeping over the denuded surface, and when I last saw her about Christmas, 1893, it was as nearly as possible all healed. This woman lived for years in a cellar kitchen in the lowest part of the valley. Here water is always found at a depth of about twenty feet below the surface of the ground which consists of loose gravel. At this time the patient kept no servant, and she worked very hard in the performance of her household duties, as she had a large family. When I knew her she was living in a good part of the town and was comfortably off. But the mischief had been done, and I take it

that the impairment of health from the causes named was the origin of both the destruction of the eye and of the vagina. It naturally occurred to Mr. Walker and myself that syphilis was the cause of the disease, but there was no evidence of this whatever, and on the contrary an absence of anything to even cause suspicion of it. I have seen one other case of this disease in a patient in my ward in the Leeds Infirmary which occurred about the same time as the one related, and the ulceration or molecular death of the vaginal wall precisely resembled that in this case, but it was not so extensive. There were the same sharp convex borders to the ulceration at its lower margin, and it stopped short of the vulvar mucous membrane exactly as in the case described. It, however, did not extend so far round the vagina, but we could not get it to heal, and the patient went out with it unhealed. The case was seen by Mr. Firth, the resident obstetric officer, and by many students.

I will now pass on to the other form of ulceration, which is of a milder type, but almost equally intractable to treatment. The vaginal wall is really a skin structure with papillæ covered with a layer of squamous epithelium. This latter, in mounting a section for the microscope, takes the dye differently, and is usually here and there separated from the papillæ underneath by the manipulations of dyeing and mounting, which shows that the union is not very intimate. It seems to me, from examining sections of this milder form of ulceration, that the squamous epithelium disappears and the papillæ are eroded but not destroyed. The disease is not very common, although in the form known as senile chronic vaginitis having a "mapped appearance," as Dr. Matthews Duncan describes it, is not unfrequently met with, but I take this to be a separate disease, and one not usually attended with ulceration. The form of ulceration I am describing attacks, as far as my experience goes, the vaginal roof and upper part of the vagina only, and is never visible below. It is hardly recognisable by the finger alone, as the surface is smooth and soft. By the speculum it is seen to be of a dull red colour, with imperfectly defined edges. The sensation this communicates to the finger is not at all like that peculiar to very superficial squamous epithelioma in an early stage. The epithelioma gives to the finger passed over it a slightly crisp, hard feel, whereas the ulceration in question is peculiarly soft, otherwise some rare cases of epithelioma of the vagina closely resemble it, spreading at the edges widely in every direction, but implicating merely a film of epithelium. The edge of the epithelioma is slightly raised and very sharp and defined; that of the ulceration is perfectly level and shades off into the healthy surface without any sharp boundary line.

Case 2.—A woman sixty-two years of age was admitted into the Women and Children's Hospital twenty years ago (I was then the junior surgeon there) with a large patch of disease, such as described, covering the whole of the vaginal roof and the posterior lip of the uterus on its vaginal surface. I had not then had the experience I have had since, and took it to be malignant.

After consultation with my two senior colleagues, who agreed with me, I cut away the whole vaginal roof and shaved off the surface of the posterior lip of the uterus to about half its depth, but without opening the peritoneum. The result was a gap which I could not bring together by sutures, but observed that the parts laid fairly close when not disturbed by the introduction of the finger. The wound healed well, and the patient went home apparently free from disease. I have not seen her since. I subsequently, by microscopic examination of the part removed, found that it was not malignant, but a superficial spreading ulceration destroying the epithelium and partly the papillæ. I still have the sections in good preservation. This was the first case I saw, and since then, from time to time, but very rarely, I have met with similar cases, but none so extensive. Occasionally there is tendency to hemorrhage. On June 14 we had one of these cases amongst the Infirmary out-patients, and it was shown to my class of students. I have, however, not noted any of these cases except the one related, and prefer therefore to relate one by an independent observer, Dr. H. Briggs of Liverpool, who has kindly contributed his notes of the case. Dr. Briggs mentioned the case at a recent meeting of the North of England Gynæcological Society. It somewhat differs from the cases I have seen in being painful, and hemorrhage is more common in smaller and tuberculous ulcers than in this form of disease.

On October 3, 1893, Dr. Paton, of Rock Ferry, Cheshire, sent to me a widow aged fifty-one years, suffering from vaginitis. One of the symptoms was rather free hemorrhage and the physical character of the ulceration was peculiar. The patient gave the following account of herself. She was the mother of twelve children and had had one miscarriage. Menstruation had been regular up to its cessation in the fiftieth year of her age. For twelve months there was not any vaginal discharge. She had not suffered from any pelvic complaint until this illness began two months ago (the uterus was in normal position and there was no cystocele). She had not worn a pessary or made any application to the vagina. There was no clear evidence of an exciting cause of the ulceration. At first the discharge was white and then whitish yellow; its quantity was considerable.

A fortnight after the leucorrhœa appeared bleeding set in, and continued daily without intermission. The hemorrhage was sometimes copious, and occasionally there were clots on the diaper. She was haunted with the fear of cancer, of which her husband had recently died. She was assured that the disease was not cancerous. The bladder was irritable. Rest had little influence on the pain. After meals and during the night the pain and irritation were always worse. She was pale and thin; there was a distressed care-worn look—proof of how seriously the general health had suffered. On local examination by a Sim's speculum *in situ* irregularly shaped ulcers were seen which reached from the anterior lip of the cervix to the meatus urinarius; the ulcerated surfaces were not raised; the edges of the ulcers were thin and were correspondingly little raised above the surfaces of the ulcers. A dull, white, granular film thinly covered the surfaces of the ulcers. When the film was disturbed by a pledget of cotton-wool bleeding occurred. Contact of the finger produced the same result. The ulceration was superficial. The edges showed a pale dull-red congestion which faded gradually into the mucous membrane around. There was neither the bright redness of acute nor the lividity of chronic inflammation.

She remained in the hospital for five weeks. The disease was limited to the upper vaginal wall throughout its whole course. Locally, with cleanliness and packing the vagina daily improvement set in. She was kept in bed. A liberal diet of plain food was given.

I can find no reference whatever to a disease such as has been described under the first so-called form of ulceration, and am inclined to think it is now for the first time described. The extensive but superficial form of ulceration differs also from anything described by Dr. Matthews Duncan or any other writer, but the case given by Dr. Briggs of Liverpool resembles them in the occurrence of hemorrhage. I can give no absolute proof of it, but think there can be little doubt that both the forms of ulceration described are produced by cocci or bacteria, which would be powerless for mischief but for the feeble resistance of the tissues owing to poor general health from advancing years and poverty with deficient nourishment. Possibly the microbes so acting are always present in the vagina in health, but are then harmless. The generative outlet or inlet of the body differs from the others in not having its surface scoured by friction, and injurious microbes are therefore allowed to remain at rest and take root. This is especially the case after the menopause, and the stagnant state of the secretions is not improbably a factor in the occurrence of such diseases as those described.—*The Lancet, July* 21, 1894, *p.* 132.

73.—ON THE EARLY DIAGNOSIS OF CANCER OF THE CERVIX UTERI.

By G. Ernest Herman, M.B., F.R.C.P., Obstetric Physician to the London Hospital.

[Dr. Herman's remarks under the headings "Relation to Age," "Family History," and "The Microscope in Diagnosis," all three of which he regards as quite unimportant factors in the early diagnosis of cancer, are here omitted, as well as some other subsidiary portions of the very important address, from which the following excerpt is taken :]

The early diagnosis of uterine cancer is important for this reason : secondary growths, either in lymphatic glands or in other parts of the body, occur later and more seldom with cancer of the uterus than with cancer of any other part of the body. There is, therefore, a better prospect, if cancer of the uterus be removed, of freedom from recurrence than in any other form of cancer. Further, modern improvements in operative technique have made it possible to remove cancer of any part of the uterus, so long as it is limited to this organ, with little risk. The essential for successful treatment is that the cancer must be limited to the uterus. The obstacle to extensive success in the treatment of cancer is that in most cases the disease is not diagnosed, either because the patient does not seek advice or is not examined—perhaps does not permit examination—until the disease has extended beyond the uterus.

SYMPTOMS.

No form of cancer of the uterus can be detected without local examination. The patient allows examination because she has symptoms.

The first symptoms of cancer are usually hemorrhage and leucorrhœa. Pain and wasting come later. The early diagnosis of cancer is of such importance that I do not hesitate to say that any unusual hemorrhage or discharge in a woman who has had children is a reason for vaginal examination, for it may be the first symptom of cancer.

Cancer of the vaginal portion and cancer of the cervix are common in women who have had children, less common in sterile married women, rare in the virgin. Therefore, I only urge local examination for hemorrhage or leucorrhœa in the case of married women. The examination by the vagina of every virgin with a little leucorrhœa or hemorrhage would be a number of wounds to female delicacy, so rarely atoned for by the discovery of cancer of the vaginal portion in a curable stage, that I think it is wiser, unless for some other reason vaginal examination is called for, to spare the patient's modesty, and let

her run the very slight risk that cancer of the vaginal portion may be left too long untreated. Cancer of the body attacks virgins as often (in proportion to their number) as married or parous women ; but this disease remains amenable to treatment for so long that, if it be present, we shall not do harm by postponing examination until the existence of serious local disease is clear to the patient.

Sometimes hemorrhage is first, sometimes leucorrhœa. The hemorrhage caused by commencing cancer has about it nothing distinctive, either as to time, duration, or quantity. The leucorrhœal discharge has no definite character that is useful in diagnosis. It is more watery than ordinary leucorrhœa. But we are dependent upon the patient for information upon its characters ; it is not wise to rely upon the indefinite data that she can furnish. The leucorrhœa does not become offensive until the cancer has begun to break down and fragments of decomposing dead tissue are contained in the discharge. Pain is of no importance as an indication of commencing cancer. Some cases of cancer run their whole course without any pain. Pelvic pain is a symptom common to many diseases, and there is nothing peculiar about the pain of cancer.

Cancer causes wasting. This is not important for early diagnosis. To do good in cancer we must recognise the disease before it has lasted long enough to produce great wasting. Slight loss of flesh may come from many causes other than cancer. Sometimes during the progress of cancer patients for a time gain weight. Hence in doubtful cancer nothing is gained by postponing treatment in order to ascertain whether the patient's weight is altering.

In brief, therefore, hemorrhage and leucorrhœa are the symptoms which in cancer first denote the presence of local disease, but the nature of this disease cannot be determined without local examination.

THE CHARACTERS OF THE HEALTHY CERVIX.

In the healthy multipara the cervix is obtusely conical, the thickest part being at the attachment of the vagina. In parous women it has generally been torn, so that the external os is enlarged, the conical shape of the cervix less distinct, and it may be split into two or more lobes. These lobes are often everted by the pressure of the vagina. If the cervix is healthy they are not swollen, so that when they are pressed together the cervix is little, if at all, larger than the virgin cervix. The mucous membrane is everywhere smooth, and pale pink in colour. When the cervix is split so that the lower part of the cervical canal is everted, the epithelium of this part becomes changed into pavement epithelium like that covering the vaginal

portion, so that it becomes smooth and pale in colour, like the vaginal portion. If these characters are present there is no cancer of the vaginal portion.

CANCER OF THE VAGINAL PORTION : i.—OUTGROWTH FROM THE SURFACE.

When cancer begins as an outgrowth from the surface it may look like a growth of warts, or papillæ, or granulations, on the vaginal portion. The surface is not smooth ; it feels uneven, or even rough.

DIAGNOSIS FROM "GRANULAR EROSION."

Adenoma.—The only other new growth that is seen on the surface of the vaginal portion of the cervix is the so-called "granular erosion." The adjective in this name is good, because the erosion is granular ; but the word "erosion" is a relic from a time when this condition had not been examined microscopically, and it was supposed that the epithelium was absent. The condition really is a flat adenomatous growth. This may quite surround the os externum, covering a space the size of a florin. It may be smaller than this, and may be limited to one lip of the os uteri. Its edge is not sharp. There is no abrupt change in the level of the surface. A line defining the edge of the growth would have to be wavy and interrupted in places, for within the scarlet new growth we find islets of healthy mucous membrane, and we find dots of scarlet new growth outside the main patch. An erosion is deep scarlet in colour, and its whole surface is of the same colour. An erosion is soft, and easily made to bleed, either by the contact of the finger on digital examination, by the friction of the end of the speculum against it in bringing it into view, or by rubbing it with wool to clean it. Where it bleeds it only shows a broken surface ; there is no ecchymosis, no excavation, no sign of sloughing.

The warty growth of commencing cancer is harder than the soft, velvety erosion, and has a sharper edge. It soon begins to show signs of breaking down. The granulations of an erosion are separated from one another by sulci uniform in disposition ; and it never presents any appearance suggestive of sloughing. When a cancerous growth is beginning to break down it looks as if it had been scratched, perforated, or worm-eaten. It is not uniform in colour, for there are ecchymoses here and there ; and if there are parts at which breaking down is rapidly going on, small spots of greyish slough will be seen.

An erosion forms a swelling which is most raised close to the os uteri, and slopes off gradually into healthy tissue. Cancer beginning as a flat growth, such as may be taken for an erosion, is more abruptly defined, raised and warty at the edges, and breaking down in the centre.

ii.—INGROWTH BELOW THE SURFACE.

Cancer may begin as an ingrowth below the surface. The first evidence of its presence which the senses can detect is an angry livid red spot, the surface of this spot being at first quite smooth. The angry livid colour depends upon the vascularity caused by the new growth, and upon its tendency to break down, which leads to minute hemorrhages into the growth before the breaking down is extensive enough to make a breach of the surface. When the smooth livid surface of the cancer spot is rubbed it bleeds. A smooth dark red spot, bleeding on contact, is very suspicious of cancer. This is the earliest stage of cancer that has been observed. If there is not merely a patch of altered colour, but a nodule that can be felt, the suspicion is still stronger.

DIFFERENTIAL DIAGNOSES.

There are conditions which are not cancer, but may be suspected of being cancer.

Red Patches on the Cervix.—Sometimes the mucous membrane over a defined area round the os externum is of a darker red than the rest, but is smooth and glistening, not granular, and does not bleed when it is rubbed, My guess is that these red smooth patches in the vaginal portion are the remains of erosions which, unassisted by treatment, have slowly got well ; so that their colour remains, although the granular surface has disappeared. When an erosion is cured by treatment it is replaced by a smooth surface differing little in colour from the rest of the vaginal portion. I cannot from the nature of the case offer evidence that this guess is correct, but I have examined such patches, and found that they were covered with pavement epithelium, and that beneath this epithelium were remains of glands such as are seen in granular erosion. These red patches, unlike early cancer, are red only, not livid, and do not bleed on contact.

Shotty Follicles in Cervix.—When the cervix has been split into lobes during labour, is also swollen by chronic inflammation, and has on it stopped up follicles filled with retained secretion, and feeling like shot imbedded in the surface, we have a condition that I have known to be taken for cancer. A lobe swollen by chronic inflammation may be thought to be enlarged by new growth, and the shot-like retention cysts may be suspected of being nodules of cancer. But these blocked up follicles, when looked at through the speculum, are, if their contents are unaltered, pearly grey in colour. If the retained secretion is inspissated they are yellow. The only elevations they form are slight smooth convexities. There is no warty growth, no lividity, and not the slightest appearance of any breaking down. The mucous surface around them is not altered in colour.

Fibroid.—A small fibroid of the cervix might, perhaps, be taken for cancer. When a large fibroid of the cervix is present it will at once strike the observer as inconsistent with cancer that so large a growth should be present without fixation, breaking down, or wasting of the body. But a doubt is conceivable when the tumour is small. A fibroid is distinguished by its smoothness, its hardness, its rounded outline, its circumscription, and by the fact that it does not break down, nor bleed on contact. It does not, like cancer, invade all tissues, but has its own circumscribed capsule. It may be congested, livid, and mottled, showing visible vessels on its surface ; but there is no breaking down, no excavating ulceration or warty outgrowth.

"*Herpetic Erosion.*"—There is a morbid change sometimes seen on a thickened cervix called the "herpetic erosion"—namely, little vesicles, like miliaria, which leave red spots when the raised dome of epithelium is wiped away with a piece of wool. These vesicles may be taken for commencing new growth, but they do not denote any such thing. I have never seen them except on a thickened cervix. I agree with Scanzoni, that they have nothing to do with herpes, and, therefore, the name "herpetic erosion" is a bad one. They are quite unimportant.

Spiegelberg's Sign.—There is a tactile sign which Spiegelberg pointed out. It is that the growth of cancer beneath the mucous membrane alters the consistence of the tissues, and makes them less pliable, so that, when the finger is pressed on and moved along the affected part, the superficial tissues follow the movement imparted to them less easily than in the normal condition. Hence the feel of the cervix is peculiar ; it has been compared to that of passing the finger over wet india-rubber. This simile is the best that I know of. This peculiar feeling is not present in every case, nor present throughout the whole course of each case ; and, therefore, its absence is no proof that the disease is not cancer ; but, when present, it should cause suspicion of cancer.

Dilatation by Tents.—A test of cancer has often been quoted in text-books on the authority of Spiegelberg, which consists in the different behaviour of cancer and of a healthy cervix under the expanding force of a tent. He said that a healthy cervix would always yield, while a cancerous cervix would not. I am sure this is wrong, and in saying so I am in agreement with Winckel and Olshausen. I have often found a cancerous cervix dilate easily, and a non-cancerous cervix so resist even a laminaria tent that the tent was removed with difficulty, and, after removal, showed a groove where the internal os had prevented its expansion.

Lacerations.—Another sign that has been pointed out as a distinction between cancer and a cervix split into lobes by lacerations during labour is that the fissures from tears during labour run from the canal outwards, while the fissures between the nodules of a cancerous growth are irregular in their course. This is quite true, but of little use for early diagnosis, for when a cancer of the cervix is so big as to consist of nodules separated by fissures there will be other evidence putting the diagnosis beyond doubt.

CANCER OF THE CERVICAL CANAL.

Cancer may begin in the cervical canal. If it begin high up, and the os externum is not much enlarged, it cannot be recognised early unless the cervix is artificially dilated. If it begin low down, and the external os has been so enlarged by tearing during labour that the lower part of the arbor vitæ uterina is visible, then cancer can be recognised here as early as when it begins on the vaginal portion. The condition which here causes difficulty in diagnosis is that in which the cervix presents the dense fibrous rounded elevations to which Dr. R. Barnes has given the name of "hypertrophic polypi"—a condition of the lower part of the cervical canal which Matthews Duncan described in the words "hardness with big-grained roughness." In this condition we have red nodular growths at the lower part of the cervical canal; and if, in addition, the patient has symptoms which go with cancer—hemorrhage, leucorrhœa, pain, wasting—the diagnosis of cancer may suggest itself. The macroscopical differences of this condition from cancer are: that a simple hypertrophic polypus does not bleed on contact; that it does not show any tendency to break down; there is no ulceration, no points of sloughing anywhere; and that this condition of "hardness with big-grained roughness" extends over an area of the cervix so considerable that cancer, if advanced enough to occupy such an extent, would certainly have begun to break down.

EFFECT OF TREATMENT.

In case of doubt, the behaviour of the suspicious part under treatment is the best test. Erosions and chronic inflammation of the cervix are local diseases very amenable to treatment. An erosion or a thick inflamed cervix may bleed on contact; but if one of these conditions is the only morbid change present, one or two applications of strong carbolic acid will so far improve the local condition that the diseased part will cease to bleed on contact. If the disease be cancer these applications will only stimulate its growth, and the local changes will be more pronounced after such treatment than before it.—*British Medical Journal, May* 12, 1894, *p.* 1009.

74.—ON TUBERCULOUS DISEASE OF THE PORTIO VAGINALIS.

By John D. Williams, M.D., B.Sc., Cardiff.

The majority of the recorded cases of cervical tuberculosis are cases in which the disease is secondary to a tuberculous mischief existing elsewhere in the body, and associated with a similar lesion of the neighbouring vaginal mucous membrane, the uterus and Fallopian tubes remaining unaffected. Tuberculosis of the uterus which also involves the cervix is, according to Whitridge Williams, rarely met with, and, as far as he could ascertain from a careful survey of the literature, has only been noted in seven cases. To this list I would add Haidenthaller's case, reported in 1890. The former authority also writes: "a most interesting feature of this affection is that it is almost always limited to the body of the uterus, rarely extending beyond the os internum to involve the cervix." Cornil states that cervical tuberculosis may constitute the sole manifestation of the disease in the entire body, as in a case reported by him in which a tubercular ulcer of the cervix was mistaken for carcinoma, for which the uterus was extirpated. Zweighbaum has noted 29 cases of tubercle of the cervix, three of which were cases of primary disease. Thus it seems as if tubercle of the cervix, whether primary or secondary, tends in obedience to some unascertained law to limit itself to that structure, thereby constituting in the first instance the only tubercular lesion in the whole of the generative tract. These observations seem to exercise a most important influence upon the method of causation. Inasmuch as the cervical disease, whether primary or secondary, is in some instances the only representative of tuberculosis in the whole of the reproductory system, one is warranted in believing that the etiological factors must embrace something besides the usual and well worn theory of infection from tuberculous discharges springing from diseased areas existing higher up in the passages of the peritoneal cavity. In some cases, of course, such an explanation is quite sufficient to account for the extension of the disease to the cervix, but in other cases it is quite inadequate, as in instances where the disease is present only in the cervix, and therefore one must fall back upon infection through the blood or direct infection from without for the *vera causa*. Direct infection may be conveyed by the use of bacilli-laden instruments, by the examining finger of the practitioner or nurse, and by coitus. There may very probably exist an inherited predisposition to genital tuberculosis, and this must be borne in mind. Infection by coitus is stated by Cornil and others to occur but rarely.

They base their statements on the rarity of tuberculosis of the vagina and cervix as compared with the uterus and tubes, for they say they should be more often the seat of the disease if infection follows the introduction of bacilli into the vagina. To recognise the fallacy of such an argument it is only necessary to consider the great rarity of tuberculosis of the mouth and pharynx in which infection from without is the rule. It is probable that the disease cannot be produced unless the presence of bacilli in the vagina be associated with an injury to, or a devitalisation of, the cervical tissues as an inherited local predisposition to tuberculosis. The introduction of tuberculous material, E. Oncarani into the vagina of rabbits, even if previously irritated by rubbing with tincture of iodine, never produced genital tuberculosis, but the animals usually died of general tuberculosis. Whitridge Williams, who conducted similar experiments could not detect a trace of tuberculosis anywhere in the body when the animals were killed from four to six weeks later. Zweigbaum believes that chronic gonorrhœa predisposes the patient to tubercular infection.

The period at which cervical tuberculosis prevails mostly is the period of maximum sexual activity, viz., between the ages of 20 and 40 years. Genital tuberculosis may occur as early as 10 weeks and as late as 83 years. The ages of the patients described in this communication are 63 and 36 years respectively, and they had borne children. As to its frequency some idea may be gathered from the fact that out of 119 cases of genital tuberculosis collected from the literature by Spath six were cases of cervical disease. Zweigbaum has collected 29 cases. At one time its occurrence was denied by Rokitansky, Lebert, West, and others, although the condition had been accurately described by Rewisch previously in 1854. The disease has, however, been thoroughly demonstrated and is now fully recognised, but unfortunately in some of our modern text books it is only referred to in order to be dismissed with a few words as a museum curiosity or a rarity of no importance to the clinician.

Great importance is to be attached to the correct diagnosis of cervical tuberculosis, inasmuch as the ulcerated variety may readily be mistaken for cancerous disease, and this error of diagnosis has actually been committed. Cornil and Zweifel record cases where hemorrhage and suppuration being the symptoms, a diagnosis of carcinoma was made, and in one instance the uterus was removed per vaginam for a tuberculous ulcer of the cervix mistaken for carcinoma. By aid of the microscope Zweifel rectified his diagnosis before operating. The possibility of mistaking the two conditions must be always borne in mind by operators.

There are no signs or symptoms which can be considered pathognomonic save the detection of tubercle follicles and bacilli by the microscope, which is the only conclusive evidence of its existence. The honour of bringing this method of investigation into prominence belongs to Babes who, in 1883, demonstrated the presence of tubercle bacilli in vaginal discharges. As regards prognosis, all the consulted authors agree that it is grave, for the risk of general infection is always great. The treatment adopted has been various; some have successfully used iodine and iodoform, the ulcers healing up by granulations; others have trusted to curetting followed by the application of the thermo-cautery, whilst others have excised the ulcer and sutured the incised edges. Some, when reasonably sure that the disease was limited to the cervix, have amputated. The disease has a tendency to recur, and Zweigbaum's case which was cured within three weeks of the application of the thermo-cautery, but died five months later of general tuberculosis of the lungs and intestines is an example.—*Medical Press and Circular, September* 5, 1894, *p.* 229.

75.—A POINT IN THE TECHNIQUE OF VAGINAL HYSTERECTOMY.

By James Braithwaite, M.D., Obstetric Physician to the Leeds General Infirmary.

Perhaps the most important points in the operation of vaginal hysterectomy for cancer are: (1) the rapidity and ease of the operation; (2) the perfect arrest of hemorrhage; and (3) the making the ends of the stumps of the broad ligaments extra-peritoneal—*i.e.*, contained in the vagina and not in the peritoneal cavity. All these points can be gained in one way—viz., by the use of an efficient clamp, or rather of two—one for each broad ligament. An instrument of this kind, which was made for me by Messrs. Reynolds and Branson, of Leeds, has now been in use for six or seven years and has never failed me once in between twenty and thirty operations. It is stronger than the somewhat light pedicle clamp commonly used in oöphorectomy and is not so broad in the gripping edge as Wells' long compression forceps with blades bent at an angle on the flat, otherwise it exactly resembles them, except in one other point to be named. It is strong enough for anything and yet occupies little space. Wells' forceps were not intended for this purpose and are too bulky to lie in the small space nature has allotted to the vagina. The other point in which these clamps differ from Wells' is that they meet closely at the points, whilst

a small space exists between the blades at the end near the joint. As the broad ligaments are much thicker at one edge than at the other this allows of the whole ligament being compressed accurately, whilst without this modification one part is crushed and another is hardly compressed at all. A clamp of this kind can be put in position much quicker than one which has to have a screw adjusted, and the diagonal deep serrations on the gripping edge make it impossible for anything seized by it to escape. The length from the handle end to the joint is six and a half inches, and of the whole instrument nine and a half inches. The clamp is bent on the flat at an angle of forty degrees. As soon as the posterior incision opening into the peritoneum behind the cervix has been made, exactly in the middle a silkworm gut or silk ligature is passed in at the raw or peritoneal surface, through to the mucous, and then back again to the raw surface, so that the loop is on the mucous side and the loose ends at the raw side. These ends are then brought into the vagina and pulled out externally. A clip is attached to them and they hang down out of the way until later in the

operation the clamps have been applied and the uterus removed. One of the ligature ends is then, by means of a good curved Hagedorn's needle, passed through the edge of the anterior vaginal wound, entering at the raw side, then passed through, and back to the raw side. It is thereupon firmly tied to the other end of the ligature, bringing closely together the anterior and posterior vaginal walls by their raw surfaces and fixing the stumps in the vagina. In order to effect this the stumps are brought well into the vagina just before tying the ligature which of course is done between the two clamps. This ligature is never removed and becomes in time absorbed. Nothing more has to be done except to remove the clamps on the third morning. As there is no screw to be undone there is no disturbance of the parts. As this operation is now, I believe, performed pretty frequently—and I gather that great difficulty is experienced in making the stumps extra-peritoneal—I submit these points, as their observance should shorten the operation to half an hour at the outside. In conclusion, I would draw attention to an article by Dr. E. L. Montgomery, Professor of

Gynæcology, Jefferson Medical College, in which he states that he passes a piece of gauze in order to prevent contact of loops of intestines with the ends of the clamps, and to "prevent the intestines making unfortunate adhesions." All this, by my plan, is quite unnecessary. The tedious fixture of the broad ligament stumps by ligatures passing through them in order to fix them in the vagina is also unnecessary. As the only death I have had to record was from shock, in a patient already in a bad condition from hemorrhage, it seems to be a great point to shorten the operation as much as is consistent with safety. I may add that the makers supply these clamps at a reasonable price and that the instruments do for every abdominal operation in which clamps are required. They are light and yet exceedingly strong.—*The Lancet, April* 14, 1894, *p.* 932.

76.—ON VAGINAL HYSTERECTOMY FOR CANCER.

By Lombe Atthill, M.D.

[Dr. Atthill publishes three successful cases of vaginal hysterectomy for cancer, and makes the following amongst other remarks upon the operation :]

The great value of the operation of hysterectomy is now so universally recognised that it seems to me there are only two points connected with it open to discussion ; one—and the most important one—the stage at which its performance is justified, or, to be more accurate, what are the conditions which should decide us against advising its performance, for it is almost impossible to operate at too early a date if once satisfied that the organ is the seat of any form of cancerous disease. But it is necessary that this be ascertained, for cases have occurred in which the diagnosis of malignant disease has been falsified by an examination of the organ after its removal. I think, therefore, it should be an established rule in all cases in which the disease attacks primarily the interior of the womb, that a portion of the intrauterine tissue be first removed and examined. I am well aware that pathologists cannot always say definitely that a given specimen contains true cancer cells, but where the result of examination is so doubtful that no definite opinion can be given, I think it is wiser to be guided by the symptoms, and if hemorrhagic, alternating with watery discharges, and of frequent occurrence, and if pain be present, I should in doubtful cases be disposed, other conditions being favourable, to operate. In the great majority of such cases the disease progresses, and, when too late, will prove to be malignant. I should regret much less to have to think I had possibly performed an unnecessary operation than to see a patient whose life I might have saved die a lingering and painful death.

But it is important and far more difficult to decide whether it be too late to attempt to operate. I have from time to time been asked to advise in these doubtful cases; in the great majority of them I have been obliged to say that any operation would be inadvisable; in some the attempt to remove the whole of the disease was, nevertheless, attempted with most unsatisfactory results. Either the patient died rapidly from the effects of the operation, or recovered from it to die ere long of the same disease, which rapidly developed in the adjacent parts. In my opinion if the cervix be engaged to anything but a very limited extent, any operation is useless. If the cervix be healthy but the organ fixed the prognosis as to the result of an operation is equally, or possibly more, unfavourable, and, of course, if both the cervix be engaged and uterus fixed, it becomes still more so.

Another matter I lay stress on is the condition of the bladder. It is at the junction of the uterus and bladder that in cases in which the cavity is primarily engaged cancerous infiltration and ulceration is most likely to occur. So long as I am satisfied that neither the cervix or any adjacent organ is implicated, I urge the removal of the uterus. If the cervix be implicated, or if the uterus be not freely movable and the bladder causing trouble, I consider it, as a rule, inadvisable.

It is to be borne in mind that I am speaking of cases in which the disease originates in some part of the interior of the uterus; the portion just above the os internum seems a favourite position for it to commence, though, no doubt, the cavity also is in many cases primarily attacked. Of one thing I am certain, that, contrary to the statements so commonly made in books, cancer primarily attacks the body of the uterus much more frequently than is supposed.

In the cases I have detailed the uterus was removed *per vaginam*, and I believe it to be the best and safest operation, unless the fundus be too large to be without difficulty pulled through the pelvis. It is doubtless a troublesome one, and, indeed, I may say irksome. The steps of it are so well known as to render any special reference to details unnecessary; thorough disinfecting of the vagina and adjacent parts prior to commencing the operation is, of course, indispensable, as well as strictly antiseptic precautions subsequently. After the first incision across the anterior surface of the cervix, the finger, far more than knife or scissors, should be used to separate the uterus from its connections with the bladder till the finger reaches the top of the fundus, and the cavity of the peritoneum is entered; this and the next step — that of opening into Douglas's pouch—is the easiest part of the operation; the real difficulty consists in safely dividing the broad ligaments, so as

to avoid injuring the ureters, and effectively securing the blood-vessels. This is never an easy task, and is specially difficult when operating, as was the case in two out of the three cases narrated, on nulliparous women of middle age, in whom the vagina was narrow and indisposed to stretch.

In order to get at the broad ligaments more easily, and so to facilitate the securing of the uterine and ovarian arteries, it has been proposed to retrovert the uterus and pull the fundus through the wound in the posterior wall of the vagina. This I did in the first of the cases related. I do not intend to do it again. The fundus was very large, the difficulty of effecting the version very great, and the time occupied in doing so considerable, and no commensurate advantage was obtained. It is far better to drag down the uterus as low in the pelvis as possible, leaving it, however, in other respects in its normal position, and then to divide the broad ligament and secure the blood-vessels.

It is the practice with some surgeons to seek for and remove the ovaries, and if they can be easily reached I do think it desirable, specially in the case of women who have not passed the climacteric period, for if left behind they may give rise to periodic attacks of pain and discomfort. Under any circumstances the removal of the ovaries gives additional security against a recurrence of the disease.

The only other question to be considered is whether the flaps of the divided vaginal wall should be approximated by the insertion of sutures, or that they be left alone. I think the latter course, in general, the best. The parts shrink and contract rapidly; union soon takes place, and the cavity closes, while silk sutures, which are generally employed, sometimes give rise to irritation. Packing the vagina with antiseptic gauze is quite sufficient to prevent any prolapse, while it secures drainage, even if a drainage-tube be not used, and this sometimes, at least, can be dispensed with.

I do not like to close this paper without alluding to those cases in which the cervix is the primary seat of cancer, and the advisability or otherwise of performing hysterectomy in such.

Pathologists are not agreed as to the direction in which in such cases the disease progresses. Dr. Cullingworth seems to believe that it spreads upwards. Dr. Williams, discussing the cases shown by Dr. Cullingworth, contended that the specimens exhibited showed that the tendency was for it to grow outwards, and to invade the parametritic tissues, and stated that his experience convinced him that where amputation of the cervix had been practised the disease, if it recurred, was found to have invaded the adjacent cellular tissue and not the stump. This

tallies with my own experience, and was well marked in the case of a patient on whom I performed supravaginal amputation of the cervix for cancer. The patient appeared, at first, to have been cured, but after an interval of a year or more came again under my observation, and died in hospital, and a post-mortem examination proved the uterus to be healthy, but all the adjacent parts were extensively infiltrated with cancer cells.

Inclining as I do to the views expressed by Dr. Williams, I have the greatest disinclination to recommend any surgical treatment in the majority of these cases. Amputation of the cervix I deem, except as a palliative, to be useless, and unless the case be seen at a very early stage indeed, hysterectomy I consider inadvisable.—*British Medical Journal, May* 26, 1894, *p.* 1121.

77.—THE TREATMENT OF BLEEDING AND OTHER UTERINE FIBROIDS BY REMOVAL OF THE APPENDAGES.

By Alban Doran, F.R.C.S., Surgeon to the Samaritan Free Hospital.

[Mr. Doran relates in detail six cases where he operated over twelve months before the date of publication. The after-histories show that all the patients derived marked benefit from the operation. We reproduce here only Mr. Doran's general remarks upon the subject of his paper.]

Experience shows that removal of the ovaries and tubes involves suppression of menstruation. Experience also shows that removal of the appendages stops the severe bleeding associated with some cases of myoma of the uterus, and usually does so without entailing much, if any, neurotic disturbance. It also arrests the growth of the "fibroid," excepting in the case of certain varieties of that form of tumour. These facts are important, for though removal of the appendages is sometimes difficult, it is certainly not so dangerous as hysterectomy, whilst the hemorrhages may be the sole source of trouble in a case of "fibroid." The explanation of the good effects of the operation in question is by no means clear. Pathologists have shown that both the ovaries and endometrium undergo changes in fibroid disease, but the significance of these changes is obscure; indeed, they seem to me to be purely secondary. As to the cutting off of nutrition by ligature of the ovarian vessels, that may account for the arrest of menstruation. It cannot

satisfactorily explain why the fibroid grows less, for the uterine arteries remain unligatured and can supply the tumour with an indefinite amount of blood. I need not discuss nerve influences; they may be left to the consideration of neurologists.

In comparing the spontaneous disappearance of uterine fibroids with their disappearance or conspicuous diminution after removal of the appendages, it must be remembered that in the latter case pregnancy, so powerful a factor in the former, cannot occur. Again, it must not be forgotten that the menopause is often postponed in cases of fibroid neglected, or treated by purely palliative measures, nor does the tumour begin to decrease immediately after the menopause. Case 2 in the present series was 45 years old, the eldest of the six. The tumour was steadily increasing, and menorrhagia was severe. Directly after the operation the period was reduced to a few spots of "show" at long intervals, whilst the tumour steadily diminished in size. The result could not be due to the coincidence of a natural menopause, and the same may be said of the five other cases, all younger.

One interesting result of successful removal of the appendages is the advent of marked stoutness.

The well-marked neurotic symptoms which not rarely follow removal of the ovaries are well known, and should always be recorded by the operator in a report of his cases. They differ entirely from the symptoms of hæmatocele or pelvic inflammation, septic or otherwise, setting in late after operation. They are often most marked when the checking of the period is most complete from the first. The severe nerve disturbance of an artificial menopause is a strong contraindication to removal of the ovaries for a purely functional neurosis aggravated at the menstrual period. For if a woman, aged 25, suffer mentally at her period she is likely to suffer worse from its premature suppression. In cases of bleeding fibroid neuroses are seldom present excepting as effects of anæmia.

In all the six cases recorded neuroses were observed after operation. In Cases 2, 3, 4, and 5 flushings of the face, a well-known sign of the menopause, occurred, and in Case 2 as early as the eighth day. This symptom appeared on the twenty-first day in a patient on whom I operated in February, 1894. In Case 1 there was a feeling of extreme weakness and discomfort when a slight show appeared during the third week. The miliary eruption soon after operation must not be ranked as a neurosis of the same class, if it be a neurosis at all. In Case 6 there were free perspirations and numbness of the upper extremities. In Case 3 there was severe lumbar pain three months after operation, but the suffering was in great part due to a chill. None of these neuroses involve any danger.

The surgeon must always endeavour to remove every trace of ovarian tissue. This is easy and safe when the ovarian ligament is elongated. The task, however, not rarely proves to be impossible. The ovarian ligament, often very long when its ovary has become a large cystic tumour, is, in the normal condition, frequently too short to allow of a safe pedicle if all the ovary be cut away. In cases of large myoma this ligament frequently remains unstretched and not hypertrophied. Moreover, just as small myomata sometimes develop on the ligament close against the ovary, so, on the other hand, semi-detached pieces of ovarian tissue may lie on the ligament close against the uterus. The operator must tie the ligature as close to the uterus as possible; then, if any trace of ovarian tissue remain on the stump it will be on the distal side of the ligature, where it will almost certainly undergo atrophy. When the surgeon finds that the ligature, as he pulls it tight, cuts into the pedicle, that means that it is cutting into ovarian tissue. The silk should be loosened and tied closer to the uterus. The ovarian ligament is very tough, and is not readily cut by the ligature silk. In one case, though there was a distinct piece of ovarian tissue left, the catamenia were completely suppressed; nor does the leaving of a minute piece of ovarian tissue prevent the involution of a hitherto growing fibroid. We must not overlook the fact that the operation is not without danger. The appendages may be diseased and strongly adherent to the tumour and adjacent structures, but their separation and removal will not involve much peril if the operator be fairly experienced. The operation must not be performed when the anæmia is so marked as to involve in itself immediate danger to life. Under such circumstances the hemorrhage should be checked for a time by local applications and ergot (if that drug is of any avail), and then tonics must be given.—*British Medical Journal*, *June* 9, 1894, *p.* 1233.

78.—ON THE TREATMENT OF UTERINE FIBROIDS BY ABDOMINAL SECTION.

By Paul Swain, F.R.C.S., Surgeon to the South Devon and East Cornwall Hospital.

We may class the surgical proceedings to which recourse may be had in the treatment of uterine fibroids under four heads:—(1) Hysterectomy; (2) enucleation; (3) ligation; (4) removal of the uterine appendages. And here we may remark that before the abdomen is opened and the tumour is examined it is

next to impossible to determine to which of these procedures it may be necessary to resort. The operator must then come to his task with a full armamentarium and with a competence to undertake either of the above operations. It is also but fair to the patient that she should know, so far as it can be explained to her without causing undue alarm, that although it is proposed, for example, only to remove the uterine appendages, yet that it may be needful to perform a major and more serious operation.

With regard to the first of these proceedings, I do not propose to trouble you with the details of the operation in a straightforward case of hysterectomy, as doubtless they are familiar to all of you. But there is one warning I would give. In large tumours, especially those occupying the cervical portion of the uterus, the bladder is frequently found dragged high up out of the pelvis, and in some cases spead out, and much attenuated, over the surface of the tumour. It has been my fate to wound the bladder in such a condition. I immediately sewed it up with Lembert's sutures, and the patient made a good recovery. But I need hardly say it was an unfortunate complication, and added considerably to the risk and length of the operation. To avoid this the parietal incision should not be carried down too far, and the position of the bladder should be ascertained either by passing a sound or by partially distending it with fluid. The peritoneum also should be carefully incised from above downwards.

One of the most serious questions which we have to consider is the method of treating the stump after the amputation has been completed. The ordinary method of fixing it in the wound with the *serre-nœud* attached has yielded most admirable results, and is, I think, at the present moment the method more usually adopted by English gynæcologists. I say advisedly "at the present moment," for I think that in process of time the alternative operation for treating the pedicle by the subperitoneal method will become more popular, and that as the clamp in the treatment of the ovarian pedicle has disappeared into the limbo of the past, so also will the *serre-nœud* in hysterectomy. As in the days of old we are told that at their meetings the early Christians had each a psalm, or a doctrine, a tongue, a revelation, or an interpretation, so now the gynæcologists each have a method which they interpret at their meetings. And so it comes about that we who wait for the crumbs that fall from our master's table are frequently rewarded for our patience. We learn much from their discussions, and standing on one side, like the looker on who sees most of the game, we are sometimes able to use our own unbiassed judgment in the selection of operations.

The battle of the pedicle in hysterectomy is now being waged; and the younger men are advocating the abolition of the *serre-nœud.* They are reproached with being premature in bringing forward the results of so few cases, and they answer—which from the view of a gynæcologist should be conclusive—that all things must have a beginning. To amputate the uterus, above the cervix, to cover the stump with peritoneum, and to close the abdominal wound sounds so good that the imagination is at once caught with the idea. But it is more easily said than done. And the trouble arises in the difficulty of arresting hemorrhage at the time of the operation, and the fear of its recurrence after the abdominal wound has been closed. In a straightforward case the method is as follows:—The uterus being lifted out of the wound the cervix is encircled with an elastic ligature. The peritoneal covering is then incised some distance above the ligature, and deflected down. The amputation is performed by a V incision, the point of the V being towards the cervix. All visible vessels in the stump are secured by ligatures of Chinese twist. The sides of the V are brought together with deep sutures of chromic gut. Then the folds of peritoneum are stitched over the stump by Lembert's suture with fine Chinese twist. I have twice performed this operation with satisfactory results. To make "assurance doubly sure" it is recommended that a double ligature should be placed on the two main vessels on either side that supply the uterus, namely, the ovarian and the uterine. The ovarian artery, which is easily found in the broad ligament, is first ligatured with a double ligature, and divided between the ligatures. The broad ligament is then divided between the ligatures. The uterine artery is next secured close to the cervix, and in doing this care must be taken to avoid the ureter, which is in close proximity. The cutting off of this blood-supply practically renders the operation bloodless.

In one of my cases of hysterectomy a curious result followed. It was a very interesting case of pregnancy at the third month, complicated with a large interstitial fibroid. I watched the case for some time, being in considerable doubt as to the diagnosis. But eventually I operated, because the poor woman's sufferings were intense, and moreover she was getting something approaching to intestinal obstruction from pressure of the tumour on the rectum. For three days after the operation she went on perfectly well. She then developed acute mania, which I thought was akin to, if not actually, puerperal mania. I see, however, that Dr. Keith has had no fewer than five cases of mania following the ordinary operations of hysterectomy in which there were no puerperal complications. The number of cases puts the idea of coincidence out of court, and we must

therefore conclude that acute mania is one of the complications incident to this operation.

The next method of treating fibroids, by enucleation, is one to which I shall refer very briefly. The mortality following this operation is so great that it can hardly be justified. In one of my cases of removal of the appendages there was a small fibroid projecting from the fundus. It was movable and evidently encapsuled. I was tempted to enucleate it, and sincerely regretted that I had yielded to the temptation, for although the case made a very good recovery, yet the hemorrhage following the enucleation gave me infinite trouble and much delayed the operation.

The third proceeding, that of ligation, is not often practised; but it is a useful alternative when it is found impossible to remove the entire tubes and ovaries. It is very simple. The tube is drawn up in a loop, and a ligature applied at the base. Thus the blood-supply entering the tube from the ovarian artery at two points is completely cut off. The last method of treating fibroids, namely, by removal of the uterine appendages, is without doubt the most satisfactory, both in its immediate and remote results, when it is applied in suitable cases. Rapidly growing tumours in young women, tumours of moderate size causing profuse hemorrhage, constant distress, or dangerous neuroses, are all conditions in which this operation is eminently useful. In very large tumours it is of doubtful expediency, the principal objection being the extreme difficulty of finding the second tube and ovary. In cases of cystic fibroma the operation is also counterindicated, as it has been proved in many cases that removal of the appendages in such condition does not arrest the growth of the tumour. The operation itself in a straightforward case is a very simple one. When there are complications it becomes one of the most difficult. When, for instance, the tumour is large, it is exceedingly difficult to find the second tube and ovary owing to the rotation of the uterus. The first ovary may present in the wound, but the second one may be situated deep down in the pelvis, or it may be so jammed against the pelvic walls as to be inaccessible, or again it may be buried in a deep groove caused by the lobulated nature of the growth. As the removal of one tube and ovary is a perfectly useless proceeding, it is therefore important, before you attack the one first to hand, that you should ascertain that the second one is accessible. Another trouble arises from the adhesions which are frequently found to omentum and bowel. These have to be separated, and it sometimes happens that the ligature has to be placed on the tube perilously near to the uterus, the result being that there is great danger of the ligature slipping off. In one of my cases this happened, fortunately before I had

closed the abdominal wound, but after I had inserted the sutures preparatory to doing so. I had considerable difficulty in securing the pedicle, and could only do so by inserting deep sutures with a curved Hagedorn's needle into the tissue of the uterus itself. Thus the hemorrhage was arrested, and the case did well.

One other complication is sometimes met with, and I think it is the most troublesome of all, and that is when the fibroid in its growth has separated the layers of the broad ligament. In such cases you will come upon a very large plexus of vessels, which would be perforated by the needle in passing the ligature, or even, if not so injured, would be more than likely to slip out of the noose owing to the tension on the structures. If you elect to go on with the removal of the tube, these vessels must be taken up one by one and secured with fine silk before any attempt is made to ligature the tube.—*British Medical Journal*, *July* 21, 1894, *p.* 119.

79.—THE OPERATION OF VENTROFIXATION FOR EXTREME RETROFLEXION OF THE UTERUS.

By W. J. Sinclair, M.D., Professor of Obstetrics and Gynæcology, Owens College, Manchester.

[There can be no doubt that ventrofixation of the uterus is by far the best operation—the most satisfactory in its results, of any operation yet invented for the cure of intractable retroflexion of the uterus. The uterus, or rather its anterior surface, is brought up to, and fixed by sutures to, the peritoneal surface just above the pubes. There are various ways of doing this, and we do not give the details of the writer's plan, but proceed to his remarks upon the advantages of the operation. (Napier's plan of operation will be found in the last vol. (cix.) of *Retrospect*, Synopsis, p. 128*, and this seems to us simpler than Sinclair's plan). Dr. Sinclair observes :]

The most obvious and striking advantage is the relief from pain and pelvic distress, and even though the relief may not be absolute, still the amount of relief is so considerable as in itself to justify the operation, should the salient objections be removed. There is a large surplus of advantage.

The operation enables the sufferers from chronic retroflexion to escape from the constant medical treatment to which they have to submit, frequently without any relief. Even in those cases in which relief has been obtained by the employment of pessaries with more or less of manipulative or operative treatment, such as colporrhaphy, the patient is condemned to the

constant presence of a mechanical appliance, which never gives absolute freedom from discomfort, and which has to be examined and replaced at intervals. The operation is a cure; the pessary is an unsatisfactory palliation.

Even though the adhesions should give way at some remote period, a large amount of improvement is likely to continue.

Conclusions.—(1) The various published series of cases show that the element of danger is almost *une quantité negligéable.* The present writer's series supports this opinion. (2) The operation, efficiently performed, is a permanent cure of the troubles arising from chronic retroflexion of the uterus, complicated with adhesions or inflammatory affections of the tubes and ovaries. (3) When pregnancy occurs after the operation no distress is experienced by the patient, and no unusual phenomena are observable during the pregnancy, parturition, or the puerperal state. (4) contrary to what might be expected, bladder troubles are quite the exception after the operation, and these discomforts are almost certainly avoidable by care in operating. (5) In a certain proportion of the cases ventral hernia occurs at the site of the cicatrix. How this is to be prevented is one of the problems of the future. (6) After making full allowance for the element of risk and the incidental drawbacks, the operation of ventrofixation is not only justifiable, but is indicated in a certain limited class of cases of retroflexion of the uterus with complications.—*Owens College Medical Chronicle, April*, 1894, *p.* 16.

[We may remark that having done this operation about ten times, we have avoided ventral hernia by closing the peritoneum first by a continuous catgut suture, putting the needle each time through the loop of the preceding stitch. We then close in a similar way the muscular layer with its strong fascia. Lastly, the skin wound is closed with interrupted silkworm gut sutures. So that there are three layers of sutures in each wound. We have had no case of ventral hernia since this plan was commenced in all abdominal sections, which is perhaps two years ago, during which time we have done over 100.—EDS.]

80.—A SUGGESTION IN THE OPERATION FOR VESICO-VAGINAL FISTULA.

By EUGENE R. CORSON, B.S., M.D., Savannah, Ga.

Some time ago a case of vesico-vaginal fistula came to me for operation offering some difficulties. The patient, a young negress, showed on examination a small fistula, about four millimetres in diameter, midway between the urethra and the

cervix. The edges were thin, the vagina small, and the entire cervix quite sloughed away, so that it was impossible to draw the parts down. However, I operated with the parts *in situ*, doing the operation advised by Lawson Tait, a method first proposed by Maurice Collis, of Dublin, in 1861. This consists in splitting the margin of the fistula all around so as to separate the vesico-vaginal septum into two equal portions, one-half consisting of the vaginal mucous membrane and submucous tissue, the muscular portion of the septum being equally divided between the two. The extent of this artificial separation is to be regulated by the extent of the fissure, by the condition of the margins, and, to a certain extent, by the position of the fissure. When the fissure is near the vesical end of the urethra or near the cervix uteri the dissection need not be carried to any great depth.

The operation failed, and, after a proper interval, I again tried the same operation, and again failed. Though so highly praised by such an authority as Mr. Tait, this operation has not been favourably received in this country. Surely the many hundreds of cases cured in the old way show that the method is a reliable one. The proof of the pudding is in the eating. Collis contended that in his operation there was no loss of material, and even if it failed the patient was no worse off than before. This, however, cannot always hold, for there is likely to be some sloughing of the flaps on failure to unite, as shown in my own case. Everything considered, I should certainly advise the young operator to stick to the old way.

On my third attempt, I hit upon the following simple device for drawing the parts within easy reach of the knife, which greatly facilitated matters. The device, in a few words, was simply this: I cut in half a small, hollow, rubber ball, such as you find in the toy shops, pierced the centre of this rubber disc with the small blade of my penknife, and passed through the slit made the shank of an ordinary shoe button, the shank appearing on the convex side of the disc. Through this was passed a strong silk ligature, strong enough to bear considerable traction. I then pared the disc down to a size permitting its passage through the fistula, and giving me sufficient margin for traction. Curling it up, I passed it, by the aid of my dressing forceps, into the bladder, where it expanded, enabling me on traction to draw the vaginal wall well down and within easy reach of any operative measure. I had now an arrangement which I can only compare to the "goose-egg" used by women in darning stockings, only much more useful for the object in view. Through the counter-pressure of the disc the paring of the edges was greatly facilitated, especially in checking hemorrhage, so apt to blur the way of the knife.

Dr. Emmet describes in his work a device made use of by him to control obstinate hemorrhage from wounding of the vesical mucous membrane. It consists in "pushing a portion of a thin handkerchief through the fistula; then, as the ends were held, a sufficient quantity of cotton was packed into the bag thus formed. This made a mass in shape like a door knob, which pressed against the bleeding surface when traction was made on the portion of the handkerchief outside of the fistula." In a complication like this I am sure my device will prove simpler and more effective.

As may well be imagined, the nice introduction of the stitches, so necessary in all plastic work, is greatly aided by this counter-pressure. And then the wonderful facility with which the parts are brought into view, almost on a level with the vulvar outlet. On my third attempt, with the aid of this device, I cured the case and in just one-half the time. Since this case I have had another, a much larger fistula, involving the beginning of the urethra, and I closed it by one operation. When all the sutures are in place they can be drawn aside and the disc drawn through the pared fistula. When the fistula is too small, and the operator is afraid of injuring the pared edges, the disc can be cut up by scissors and removed piecemeal by the dressing forceps.

Shortly before his death, Dr. Henry F. Campbell sent me a paper on some bad cases of vesico-vaginal fistula, and I suggested to him this device. He wrote me an interesting letter on the subject, and I take the liberty of quoting from it: "On page 9 of my pamphlet I refer to a case which I class among the 'bad cases' which has given me much trouble. It is one very similar to your case, as described in your letter, the entire neck of the uterus has been sloughed away by the long detention and pressure of the head during the labour. As in your case, I had no cervix to pull upon, indeed, all my paring and suturing had to be done *in situ*, and I made a signal failure. The rent is enormous, but I believe I could cure the woman if I could bring the edges comfortably into sight and range of manipulation. I have in this case to thank you for the ingenious device of the divided hollow ball; indeed, I have regretted my promise to try another operation, but your invention gives me some hope of success. I feel very sure that if I can place my sutures in the properly pared edges I will cure the case, and I think that your device will enable me to do it. I am quite sure that such a device has never been recorded by anyone in the literature of the subject. I can have no trouble in getting out the ball, or one-half ball, for we can pull out the sutures between the lips of the rent into any length of loops so as to bring the ball out between the wires, or we can cut the

ball into pieces with the scissors and take it out piecemeal. Your suggestion is a most excellent one in such cases."

It may be necessary to mention some additional points in the use of this device. Choose a rubber ball moderately thin, say the twelfth of an inch, so that the rubber disc may be readily curled up and passed into the bladder with the dressing forceps. Before curling it up draw the button well out, an inch or more, that the button head be not in the way. On traction being made the shank immediately slips back into the slit made by the penknife.

Make the sutures sufficiently long to permit of their being well drawn out into loops preparatory to removing the disc from the bladder. As seen in his letter, Dr. Campbell foresaw this necessity.

It had occurred to me that the instrument makers could give us an inflatable ball somewhat after the fashion of a Barnes' dilator. The tubing, in this case, would have to be fortified by a spiral wire or some arrangement to permit of sufficient traction. But it would have the great disadvantage of being elastic, and would be, I think, in every way inferior to my simple arrangement. The operation for recto-vaginal fistula would also be greatly facilitated by this device. While skilful and experienced operators may disregard these little helps, it behoves those less skilful to avail themselves of everything which can in any way aid in the easy performance of this operation. Since the introduction of cocaine, general anæsthesia will only be occasionally required. A hypodermic of morphia and the local application of cocaine render the operation almost painless, and this, I think, overcomes a difficulty. In both my cases this method worked admirably. It will be found safer, I believe, to make the line of union transverse, and the traction of the stitches in the line of the vagina. It is quite evident that there must be less tension longitudinally than transverse, yet cases may arise where the opposite holds good. Each case demands its own special treatment.—*American Journal of Obstetrics*, 1894, *p.* 209.

81.—A NEW METHOD OF TREATMENT OF UTERINE MYOMA WITHOUT REMOVAL OF THE UTERUS, BY LIGATION OF THE OVARIAN AND UTERINE ARTERIES.

By F. Byron Robinson, B.S., M.D.

In November, 1892, a woman, aged 42, consulted me on account of excessive hemorrhage from the uterus of eighteen months' standing. During the last six months she had lost so

much blood that she was becoming a bed-ridden invalid. Examination revealed a myoma of the uterus the size of a child's head. She entered the Woman's Hospital. Assisted by Drs. Shibley and White, I made abdominal section. On account of extensive adhesions, thick abdominal wall, and the exhausted condition of the patient, it was thought unsafe to attempt to remove the tumour. I therefore decided to ligate the ovarian artery, and then to ligate the uterine artery as far down as it was thought safe without risk of producing gangrene of the uterus. I applied two ligatures to each uterine artery for about two-thirds of the distance from the tube to the internal os. I did not remove the ovaries and tubes. The patient made a good recovery ; an abdominal fistula remained for several weeks. Three months after the operation the uterus was about two-thirds its former size, and three months later it was one-half its original size. For the past six months the atrophy has been continuous. She has had occasional slight hemorrhages, but considers herself well.

I have since performed this operation three times, and so far with good results. The second operation was performed about five months ago, and the patient was doing well when I last saw her, several months after the operation. The last two cases are too recent to judge of the permanent results.

This operation will be useful in certain cases in which it is desired to cause atrophy of the uterus and immediate cessation of menstruation. In such cases ligation of the ovarian arteries and of the uterine arteries along the side of the uterus, together with removal of the Fallopian tubes, will accomplish this result by cutting off the chief blood-supply to the fundus and body of the uterus. By this operation the shock attendant upon hysterectomy, which is so often fatal in very anæmic patients, will be avoided.

Great care and judgment must be exercised, in the cutting-off of the blood-supply of the uterus, not to go beyond the limit of safety as regards gangrene. The minimum amount of blood-supply necessary for life of the uterus cannot be stated, but I have demonstrated that the ovarian artery and the uterine artery for two-thirds of the distance from the tube to the internal os can be safely ligated.

Dr. Franklin H. Martin has shown, in his operation of ligation of the uterine arteries through the vagina, that it is safe to ligate both uterine arteries as they cross the ureters. It must, however, be remembered that the uterus is fed by perpendicular branches from the utero-ovarian arteries, and hence that each uterine segment is supplied by its own straight artery. The uterus is very tolerant to variation, or even to sudden cessation, of its blood-supply.

In the ligation of the arteries many nerves, including the automatic menstrual ganglia, will necessarily be destroyed, and immediate cessation of menstruation will result. This artificial menopause will lessen the nourishment of the uterus.

This operation will aid in :—(1) Atrophy of uterine myoma ; (2) cessation of menstruation ; (3) atrophy of the uterus and checking uterine hemorrhage.

The operation heretofore performed to induce artificial menopause has often failed, or the desired result has not been obtained for months or even years.—*American Journal of Obstetrics, April*, 1894, *p.* 484.

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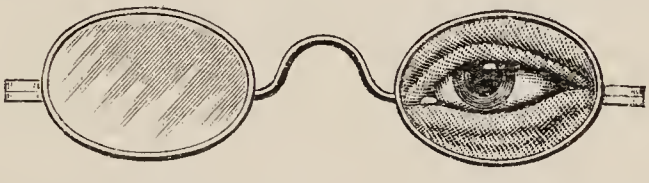

following closely the contour of the nose, which bears the artificial eye. This consists of an ordinary glass portion (but little larger than the surface intended to be shown), having lids carefully moulded and coloured to harmonise with the skin. This rests lightly but firmly against the socket, and when carefully constructed the effect is very natural, and the lost expression is restored to the face. The lids are constructed of a material which is non-corrosive, and therefore unaffected by tears or secretions, and the invention appears to meet the wants of a class of cases hitherto entirely unrelieved.

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Emol Keleet is the most beautiful impalpable mineral powder with which we are acquainted, and promises to supersede all the older forms of dusting powders. Beyond the purely mechanical effect of covering and protecting from friction or attrition the surface to which it is applied, Emol-Keleet is possessed of distinct emollient and soothing properties, as well as being

a most efficient antipruritic. We have made use of it for some time past in the treatment of eczema, especially in infants and young children, where dry and soothing agents are most desired, and have found it to be a most excellent application in such cases, while the readiness with which it can be used, and its absolute freedom from all risks of decomposition, add largely to its value. It has also proved to be of great use in the removal of epidermal concretions, such as are seen in eczematous conditions of the palms and soles. We can most confidently recommend it as an addition of great value to the resources of the dermatologist.

Cocaine Spray.—We have made an extended trial of this exceedingly neat, efficient, and simple contrivance, and can confirm all that Messrs. Burroughs, Wellcome and Co. claim for it. The instrument has been designed and introduced with a view to obviate the toxic effects so frequently produced by the indiscriminate use of cocaine solutions. With larger instruments holding a considerable quantity of the solution, sufficient for many doses, it is difficult to prevent excessive use of it. By means of this little spray the patient is enabled to control the quantity with the greatest possible nicety, since he cannot exceed the dose ordered, the solution being prepared from the "Tabloids," one or more as the case may be. It not only secures accuracy of dosage, but it enables the patient to carry on the treatment systematically and regularly, as the spray itself can easily be carried in the vest pocket.

Phenosalyl (*a new Antiseptic*).—A clear syrupy liquid is a new antiseptic combination consisting of a mixture of carbolic, salicylic, and benzoic acids, dissolved in lactic acid. Bacteriological trials—dealing with micro-organisms peculiar to each of the following diseases:— Cholera, anthrax, pneumonia (Fraenkel), bacillus pyocaneous, typhus, diphtheria, tuberculosis, and with staphylococcus pyogenes aureus—prove that its antiseptic power is far superior to phenol. The last-mentioned bacterium is well known as one of the most resistant, as well as one of the greatest interest, in surgery; but even a 1 per cent. solution of Phenosalyl is sufficient to kill it, while to produce the same effect with carbolic acid one must use a $2\frac{1}{2}$ per cent. strength, and the exposure or contact must be continued for a longer period. Numerous trials show that it will kill the bacteria of pus after one minute's contact. The advantages of Phenosalyl over other antiseptics are as follows:—Easy solubility in water, no danger of toxic symptoms, and a pleasant non-persistent odour. The solutions have no corrosive action on the skin, the mucous surfaces remain smooth and slippery, and do not become dried up, as is the case after washing with carbolic acid or corrosive sublimate.

Phenosalyl for Gauze, &c.—This modification of the normal Phenosalyl is prepared for use in the impregnation of gauze, wadding, bandages, and dressings ordinarily required in operative surgery, for which purpose this solution lends itself readily. For general work a one per cent. solution is considered sufficient to secure antisepsis in textile fabrics used in this connection. We have made numerous clinical trials of Phenosalyl, and have been highly satisfied with it. As a mouth-wash in aphthous stomatitis, in typhoid fever, and in other conditions in which the buccal mucous membrane is the seat of offensive and painful disorder, we have found it to act as an admirable detergent and soothing application. As an antiseptic stomachic it has, in our hands, proved of much benefit in cases of flatulent dyspepsia with dilatation of the stomach.

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is required, we cannot call to mind a more suitable or more satisfactory preparation than Bovril Beef Jelly.

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In addition to a most interesting article on the subject of Graves' disease and its probable connection with thyroid function, which appeared in *The Lancet*, Jan. 6th, 1894, p. 36, there appears on p. 19 of the same issue "Notes on Five Cases of Skin Disease treated by Thyroid Gland," by J. F. Gordon Dill, Esq., M.A., M.D., Assistant Physician to the Sussex County Hospital, Brighton. Three of these cases of Chronic Psoriasis, after treatment with iodide of potassium and arsenic internally, and chrysophanic acid ointment locally, showed no improvement, but, on the other hand, the disorder was in some cases aggravated, developing a general dermatitis of the face with febrile disturbance.

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For full details of the above quotations see *The Lancet*, January 6th, 1894, p. 19.

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☞ To illustrate well the vast improvement, both physical and mental, which this form of treatment induces in sporadic cretinism, see original article in *The Lancet*, with Photographs by William Wallis Ord, M.D., Oxon, M.R.C.P. Lond., Nov. 4th, 1893, p. 1113.

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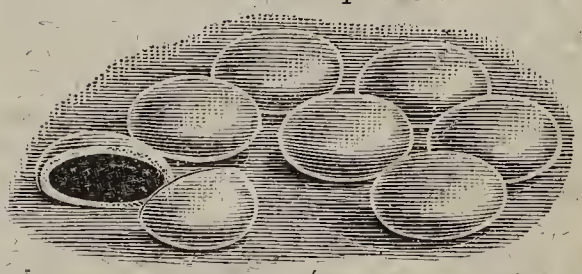

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